United States Patent

Kelly

[15] **3,705,556**

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[54] TABLE CONSTRUCTION

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[52] **U.S. Cl.** **108/144,** 161/250, 248/219

[51] **Int. Cl.** **A47b 13/02**

[58] **Field of Search**.....108/144, 111, 161, 154; 161/250; 248/219; 297/412

[56] **References Cited**

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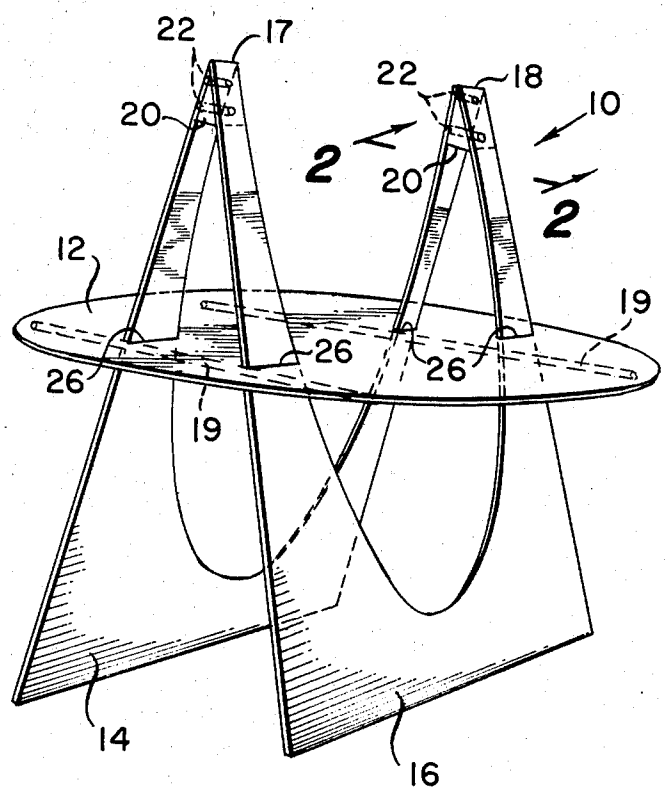
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[57] **ABSTRACT**

A rigid, easily assembled table having few parts, and a method for fabricating such a table, preferably from a single sheet of material, are disclosed. The table comprises a flat top member and a plurality of support members extending obliquely through the top member, said support members being secured together at their apices above the surface of the top member. An additional feature allows the top member of the table to be vertically adjusted without dissembling the component parts.

12 Claims, 6 Drawing Figures



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SHEET 1 OF 2

Fig. 1

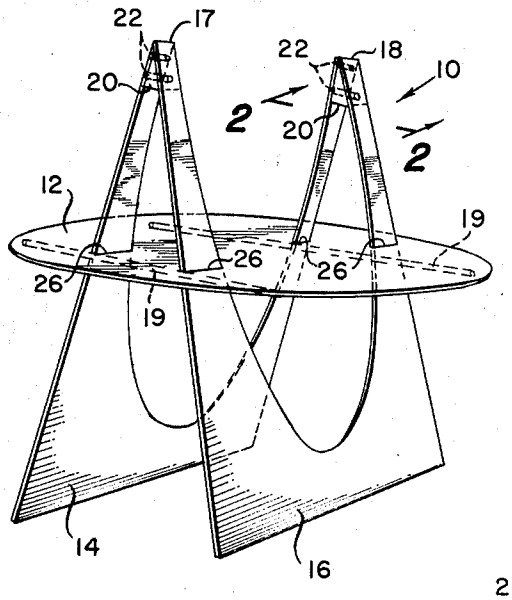


Fig. 2

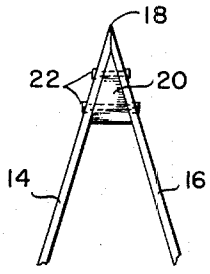
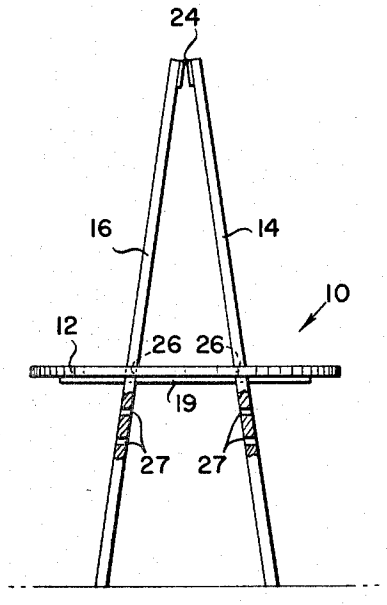


Fig. 4



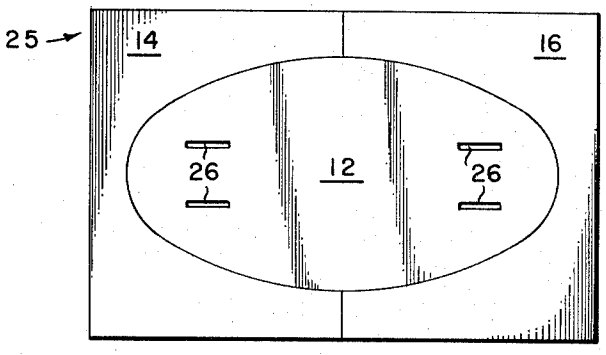


Fig. 3

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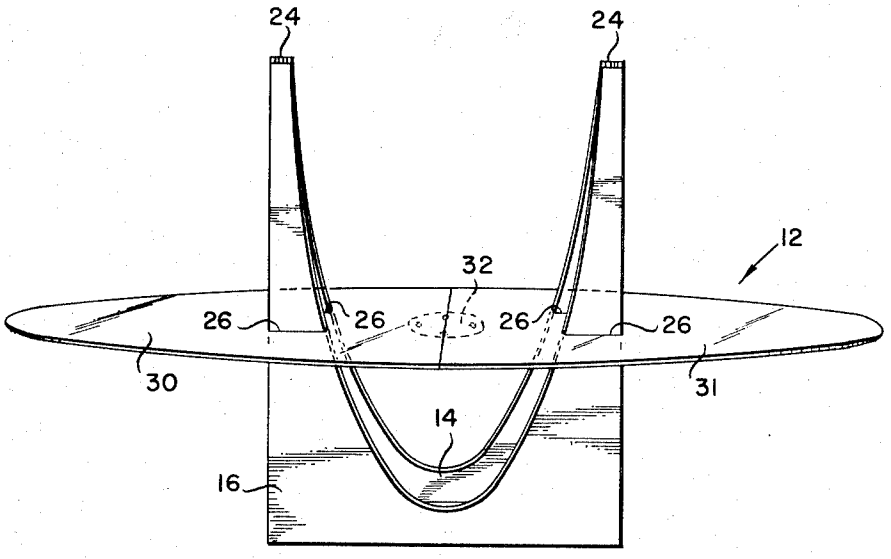


Fig. 5

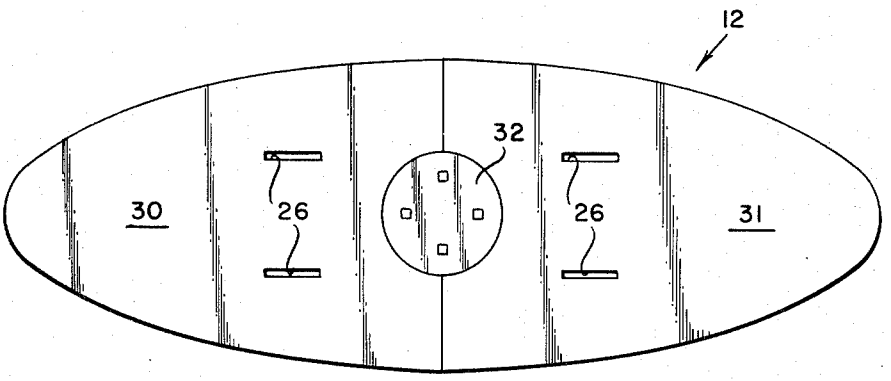


Fig. 6

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TABLE CONSTRUCTION

BACKGROUND OF THE INVENTION

This invention relates to the construction of household or other furniture and more particularly is concerned with providing a novel table assembly, the several parts or sections of which are adapted to be easily fabricated and then interlocked together to form a table with minimum use of nails, bolts, screws, glue, and the like.

The prior art is replete with attempts to provide furniture and particularly table assemblies which are easily fabricated, can be easily assembled and disassembled, and yet provide a rigid structure suitable for their intended use. The paramount obstacle in such furniture design resides in providing a highly stable structure while utilizing a minimum number of parts. Simplicity in fabrication of the individual component parts is often sacrificed to achieve the desired stability in the end product. Furniture structures exhibiting the desired degree of stability are in addition often more difficult to assemble and dissemble, and, moreover, the basic geometrical configurations which lend stability to the assembled article militate against any factor of adjustability which might be built into the finished articles of furniture.

A further refinement along the lines of the foregoing endeavors is represented by various attempts to fabricate the component furniture parts from a single piece of material, such as plywood, and furthermore to produce a minimum amount of waste or selvage by utilizing the peripheral cuttings from the furniture top member to construct the support members for the furniture piece. Such attempts, as exemplified by U.S. Pat. No. 2,235,290, suffer from the disadvantage that critical dimensioning and intricate notching and cutting are required to provide the necessary interfitting relationship between the component parts. Moreover, the resulting article of furniture suffers from the aforementioned disadvantage that it offers no factor for adjustment, as, for example, in the height of the top surface.

SUMMARY OF THE INVENTION

Accordingly, it is one object of this invention to provide a table having an extremely simple mode of construction from a minimum number of component parts, yet one having a high degree of rigidity and stability. Another object is to provide a table having but few parts and which can be easily assembled and dissembled for shipment or storage in a minimum amount of space.

Another object of this invention is to provide a rigid, easily assembled table having but a few parts, yet which can be adjusted to various heights when fully assembled.

Still another object of this invention is to provide a table and method for making same from a single piece of material, characterized in that the residual peripheral portions remaining after formation of the table top surface may be used without further adaptation for the support members of the table construction.

In accomplishing these objects, one feature of this invention resides in a table comprising a flat top member and a plurality of support members extending obliquely through the top member and being secured together at their apices above the surface of the top member.

Another feature of this invention resides in a table comprising a flat top member and a pair of generally flattened U-shaped support members having their upright portions extending obliquely through the top member and being secured together at their apices above the surface of the top member. The flattened base of each "U" provides for the floor engaging means.

Yet another feature of this invention is provided by a method for fabricating a table which comprises cutting out a flat top member from midway between the ends of a generally rectangular sheet of stock material, severing the residual peripheral portion of the stock material near its longitudinal midpoint to form two generally U-shaped members, and without further modification inserting the upright portions of said members obliquely through the table top member and securing the extremities of these members at their apices above the surface of the top member.

Other objects, features and advantages of the invention will become more apparent from the following description of the invention and from the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. **1** is a perspective view of a table constructed in accordance with the present invention;

FIG. **2** is a side view along the lines **2—2** of FIG. **1**;

FIG. **3** is a top view of a piece of stock material having inscribed thereon the outlines for the component parts of a table according to this invention;

FIG. **4** is a side view, partially in cross section, of an adjustable table constructed in accordance with the present invention;

FIG. **5** is a perspective view of a table having a seamed top constructed in accordance with the present invention; and

FIG. **6** is a bottom view of the table top in FIG. **5**.

DETAILED DESCRIPTION OF THE INVENTION

In accordance with this invention, an article of furniture, particularly a table, is constructed by forming a flat top member of any shape, and providing the top member with a plurality of support members which are arranged to obliquely extend through the top member at an angle which allows each support member to abut at its upper extremity with at least one other support member at a point above the table top member. By selecting the proper shape for the support members, e.g., triangular, it is possible to provide a rigid table structure utilizing only two such support members. While of course the upper extremities of the support members may be notched, grooved or similarly fashioned to keep them in abutting relationship, it is preferred that the support members be secured together at the apices formed at these points of abutment. A triangular configuration is defined by any two of the support members and the base member, generally the ground or floor, upon which the table rests, and it is this geometrically rigid configuration which imparts the superior degree of rigidity and stability exhibited by the structures of this invention. It will be appreciated that the gradually increased spacing of the support members which occurs between their apices and the ground or floor will provide the only

necessary means of support for the table top member, particularly where the support members are rigidly secured in fixed angular relationship at their apices. Furthermore, if the support members themselves are of tapering configuration from their lower extremities to their upper extremities, such an increasing factor of width may also be employed to lend support to the table top member. This latter means of support is of course a function of the size of the slots cut in the table top for insertion of the support members, while the former means of support is not dependent upon the shape of such slots, but only upon their relative spacing from one another.

In other embodiments of this invention, the top member of a table or other item of furniture constructed in accordance herewith may be provided with a means of vertical adjustment. To accomplish this result, the support members are hingedly secured together at their apices consequently allowing for adjustment of the angles formed between each support member. By so doing, it is possible to provide at any desired height a horizontal spacing between the support members which corresponds to the spacing between the slot-like openings in the table top surface, thereby causing the top member to be supported at this level. Optionally, and more preferably, additional support means are provided between the top member and the support members of the structure, for example, by providing holes in the support members at the desired levels and inserting dowels or similar members therethrough thus providing an additional horizontal member upon which the top surface may rest and find support. By providing a plurality of holes in each support member any desired table height may be achieved. It will of course be appreciated that in lieu of dowels or the like, other support members such as brackets, pegs, or screws can be employed as the optional additional supporting means for the adjustable tables of this invention, and of course such optional support means may be employed in any of the other embodiments according to this invention.

In a presently preferred and the illustrated embodiment of the invention a table is constructed from a single piece of stock material, such as plywood, laminated wood, or the like. Referring now to the drawings, in FIG. 1 is illustrated such a table generally designated by the reference numeral **10**. The table comprises generally top member **12** and U-shaped support members **14** and **16** inserted obliquely through slots in the top member and secured together at their apices **17** and **18**. Optional support members in the form of dowels **19** slidably inserted through holes in the support members are supplied beneath the table top **12**. It will of course be appreciated that the slots can all be of such a length and so dimensioned that the top member **12** will snugly engage the four legs of the U-shaped support members at a predetermined height off the floor, without the need for any other support means whatsoever.

In FIG. 2 is depicted one means of securing the support members at their apices which consists of placing between each pair of support members in the apex formed therebetween a wedge shaped block **20** of wood or other suitable material having a vertex angle corresponding to the desired angular relationship of the support members, and then securing support members **14** and **16** and wedge **20** together by suitable means such as bolts and nuts **22** which may be inserted through appropriately drilled holes in the three members.

The method of constructing tables according to the preferred embodiment is most easily described with reference to FIG. 3 of the drawings. A flat sheet of stock material having a length greater than its width is designated generally by reference numeral **25**. Equidistant from the sides of the piece of stock material there is inscribed and cut out a top member **12** which may be of any shape so long as at least one dimension is greater than the width of the starting material sheet. While an elliptically shaped top member **12** is pictured in FIG. 3, such configuration was chosen on the bases of ease of fabrication and aesthetic design, it being readily apparent that other shapes such as rectangular, or any generally oval shape will typically be appropriate. Upon removal of the top member **12** from sheet **25**, there is left the residual peripheral portion of the sheet which is then transversely severed at or near its longitudinal midsection to yield two generally U-shaped support members **14** and **16**. A pair of slot like openings **26** is then cut at each end of the top member as illustrated in FIG. 3, these two pairs being spaced from each other a distance equal to the width of the table top member and hence the same distance as the upright legs of the U-shaped support members **14** and **16**. The upright legs of the support members are then obliquely inserted through the slot like openings **26** in the top member so that the upper extremities of one support member abut with those of the other support member above the surface of the top member **12**. At each apex formed, these support members are secured together as described above.

Tables employing the vertical adjustment feature as hereinabove described may also be made according to the preferred and illustrated embodiment of this invention. In FIG. 4, a side view of such a table, reference numerals **14** and **16** depict the support members, and reference numeral **12** the table top member. In the pictured embodiment, the support members are secured together at their apex in angularly adjustable relationship by means of a loose pinned hinge **24**. Such an adjustable table necessarily employs added supporting means in the form of dowels **19** and **19'**, or any other suitable support means, which in the case of the dowels, are inserted through holes **27** formed in opposing relationship in each of the support members **14** and **16**. Thus, to vary the vertical placement of the top member **12**, one need only remove dowel **19** and slide top member **12** along the support members to the desired height and then reinsert the dowel member support means into the appropriate holes **27**. Movement of the top member will of course change the angular relationship of support members **14** and **16**, such movement being provided for by loose pin hinge **24**. It will also be appreciated that in the embodiment of FIG. 4 the slots **26** must each be of such a length as to accommodate the legs of the U-shaped support members **14** and **16** at the lowest distance contemplated of the top member **12** from the floor, i.e., the slots **26** must each be of such a length as to accommodate the legs of the "U's" at their widest points consistent with desired shortest distance of top member from floor.

An illustrative, but by no means limitative example of a table constructed in accordance with the method of this invention is as follows: Into a rectangular sheet of 17-ply Birch Plywood there are driven two nails near the ends of the rectangular sheet on the longitudinal center line. A piece of wire or cable is joined end to end encircling the nails. Using a pencil, an ellipse is inscribed onto the plywood sheet using the nails as focii in known geometrical fashion. Two pairs of slots are then cut in the elliptical top members, one pair separated from the other pair by a distance equal to the transverse diameter of the ellipse. Using a sabre saw, the ellipse is cut from the plywood sheet, and likewise each of the four slot-like openings is cut out of the elliptical top member. The residual peripheral portion of the original plywood sheet is severed at its longitudinal midpoint to give the two U-shaped support members. No additional shaping of the component parts is necessary, except, generally, for aesthetic reasons the edges of the top member are bevelled and sanded, and, similarly, the upper extremities of the support members are rounded, bevelled and sanded. The support members are then inserted through the slots in the top member at such an angle that the upper extremities of one member meet with and abut the like extremities of the other support member at a point above the surface of the top member. At each apex the upper extremities of the support members are secured together with a solid brass hinge. The two removable hinge pins form the only fasteners of any kind used in assembly or disassembly in this example. The table top comes firmly to rest upon the tapering portions of the support members at a predetermined point from the ground with the resulting table exhibiting a great degree of rigidity.

The resulting table is then advantageously finished by uniformly burning and blackening the wood with a propane torch, followed by wire brushing to remove the outer charred layer and yield a smooth darkened finish to the wood. At least one coating of a decorative and moisture proof coating (Vultathane VT 300 Oil Free Polyurethane, General Latex and Chemical Corporation) is then applied uniformly to the entire table.

The added feature of a vertically adjustable table top is added to the aforedescribed table by drilling at lest one horizontal ¾-inch hole in each upright leg of the support members at an equal height from the table top surface as it rests in its natural lowest position upon the support members. The table top is then raised to a new position by sliding it upward to a point above the holes so provided in the support members, inserting a ¾-inch diameter dowel through each pair of adjacent upright legs, and allowing the table top to then rest upon the additional support means supplied by the horizontal dowel members.

Thus, there is provided according to this invention a table characterized by a high degree of rigidity and stability and a very simple and inexpensive method of construction. For storage and shipment purposes, the table of this invention may be easily assembled and dissembled with minimum hardware and number of parts. An additional desirable feature of the subject tables allows for vertical adjustment of the table top by a simple adjustment not requiring dismantling and reassembly of the table.

It is also possible according to this invention to provide for a table of unusually large dimensions by, for example, using two sheets of stock material rectangularly seamed together at what would be the center of the top member of the resultant table. See FIGS. **5** and **6**. This is conveniently accomplished by either bolting, screwing and/or, e.g., epoxy gluing an advantageously metal plate **32** across the center of the end edges of a pair of abutting stock sheets **30** and **31**. The method of construction of such a table would be exactly as that described with reference to FIG. **3** except that the residual peripheral portion defining the support members **14** and **16** would not have to be severed (the abutting end edges themselves defining the severed longitudinal mid-section) and the top member **12** would of course be seamed.

While the invention has been described and illustrated with reference to certain preferred embodiments thereof, those skilled in the art will appreciate that various modifications, changes, omissions and substitutions can be made without departing from the spirit of the invention. It is intended, therefore, that the invention be limited only by the scope of the following claims.

What is claimed is:

1. A table comprising a flat top member and at least two spaced pairs of support members extending obliquely therethrough, each of said support members having an elongated horizontal cross-section, and each of said support members of each pair being adjacent and secured to only the other support member of said pair at their apices above the surface of said top member.

2. A table according to claim **1**, wherein said support members are secured together in fixed angular relationship.

3. A table according to claim **2**, further comprising additional support means for said top member, said additional means appending from said support members and being vertically positioned at the height desired for said top member.

4. A table according to claim **1**, wherein said support members are secured together in such a manner that their angular relationship may be varied.

5. A table according to claim **4**, further comprising additional support means for said top member, said additional means appending from each of said support members and being vertically positioned at at least one desired top member height, whereby said top member is rendered vertically adjustable.

6. A table according to claim **1**, wherein said support members comprise upright legs of at least two generally U-shaped members each having an elongated support base.

7. A table according to claim **6**, wherein said top member is cut from the center of a rectangular sheet of material, and wherein each of said U-shaped members comprises the semi-circumferential peripheral trimming from said top member.

8. A table according to claim **7**, wherein said top member is oval in shape.

9. A table according to claim **7**, burn-finished and provided with at least one coating of polyurethane.

10. A table according to claim **6**, wherein said top member comprises two sections secured together by fastening means, and each of said U-shaped members comprises the peripheral trimming from each of said sections.

11. A table according to claim 10, wherein said fastening means comprises a metal plate glued to each of said top member sections.

12. A table according to claim 6, wherein each of said upright legs of said generally U-shaped members has an upwardly tapering width.

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