Feb. 24, 1959 ARTHUR GRODSKY NOW BY CHANGE OF NAME AARON GRODSKY 2,875,008

ROTATABLE LEG HINGE AND COVER FOR TABLE

Filed May 9, 1955

3 Sheets-Sheet 1

Fig. 1.

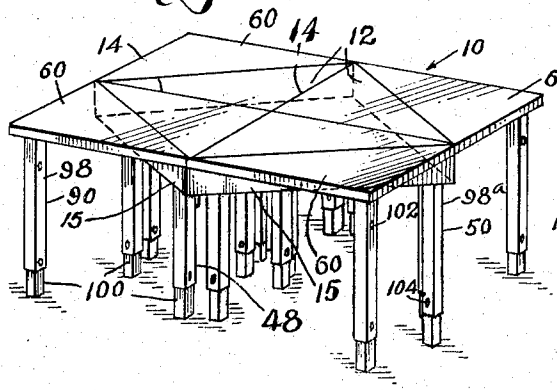


Fig. 2.

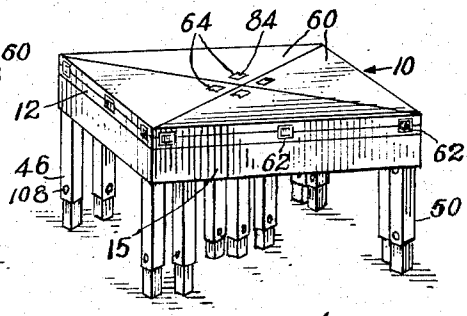


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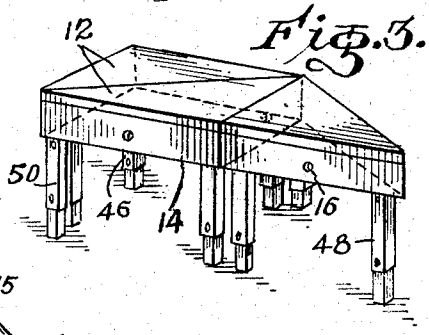


Fig. 4.

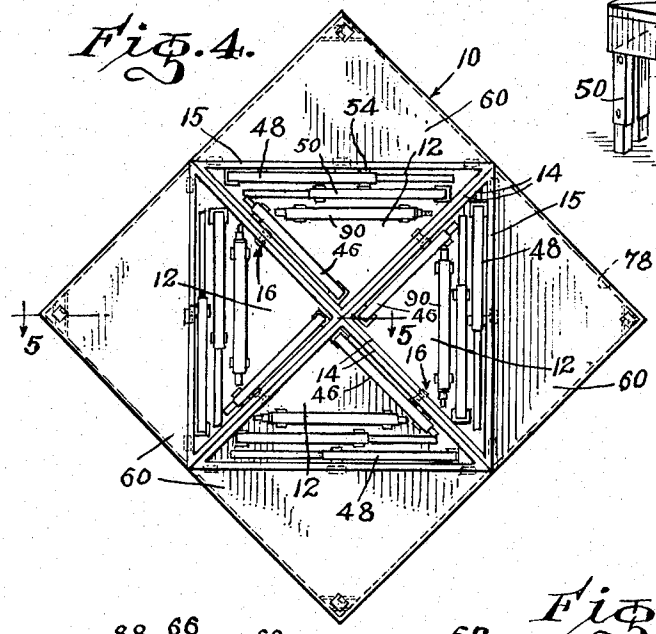


Fig. 6.

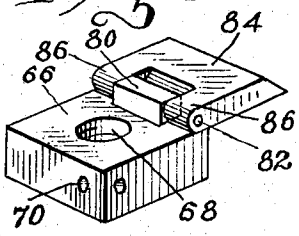


Fig. 5.

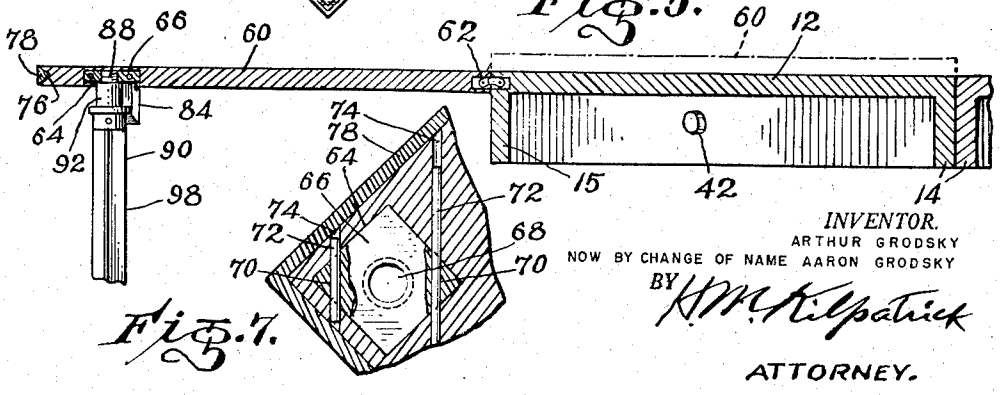


Fig. 7.

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Fig. 8.

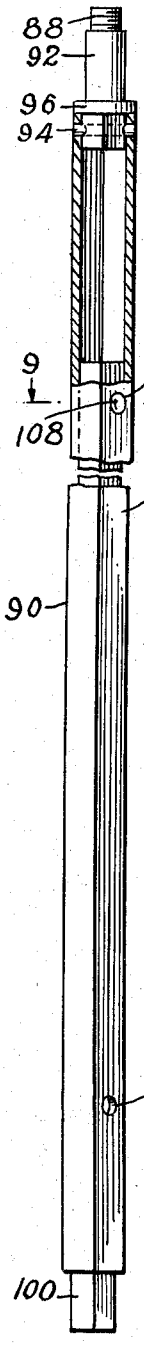


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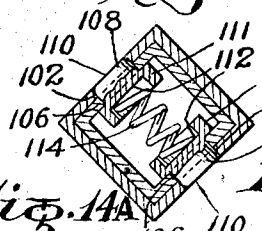


Fig. 10.

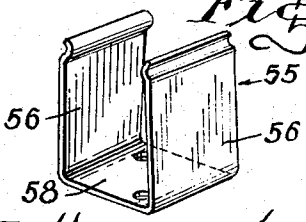


Fig. 14A

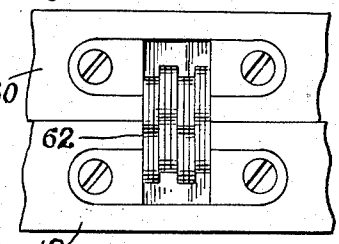


Fig. 11.

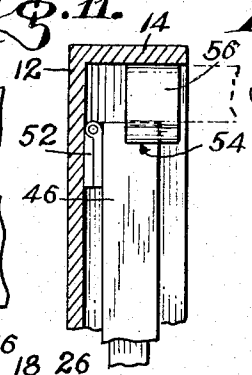


Fig. 12.

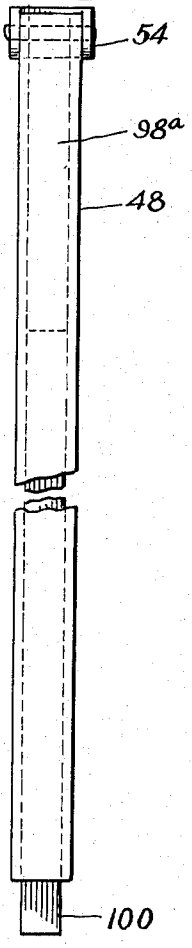


Fig. 13.

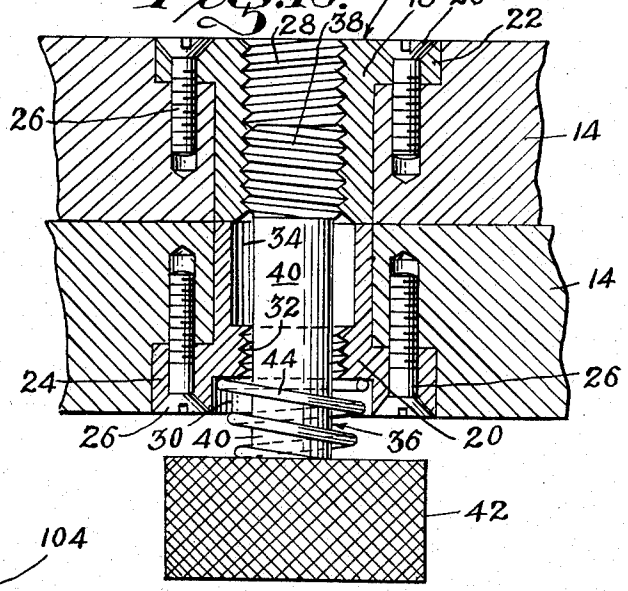
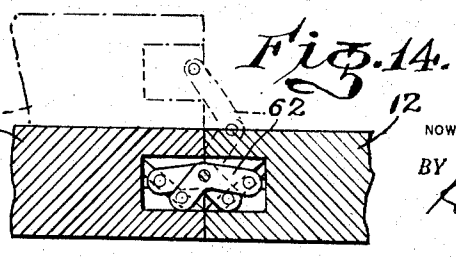


Fig. 14.



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Fig. 15.

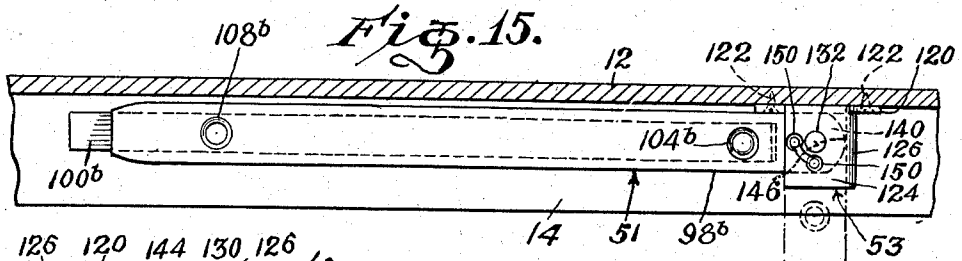


Fig. 16.

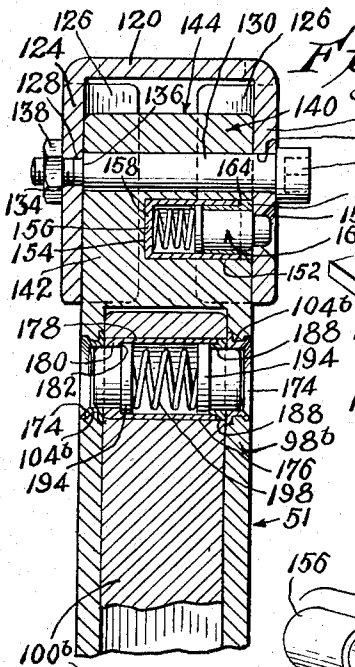
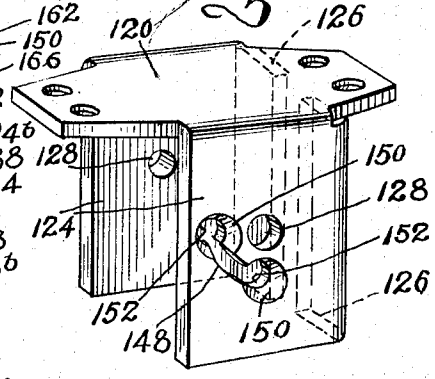


Fig. 17.



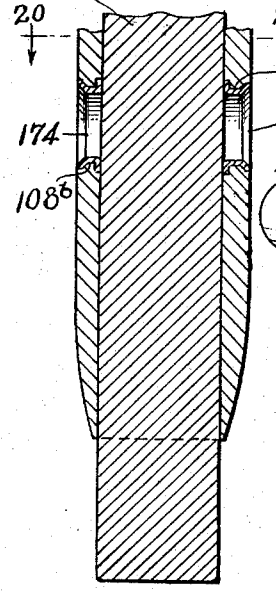


Fig. 18.

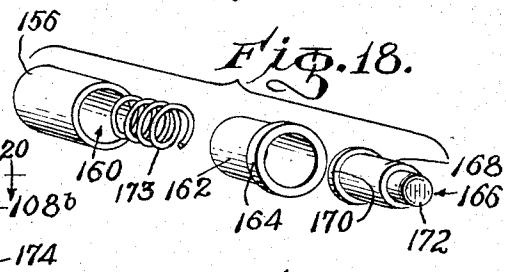


Fig. 19.

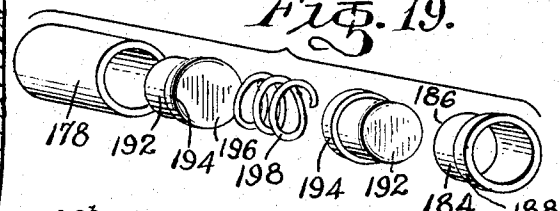
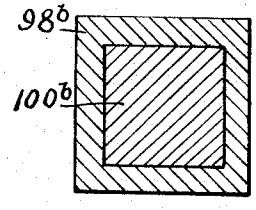
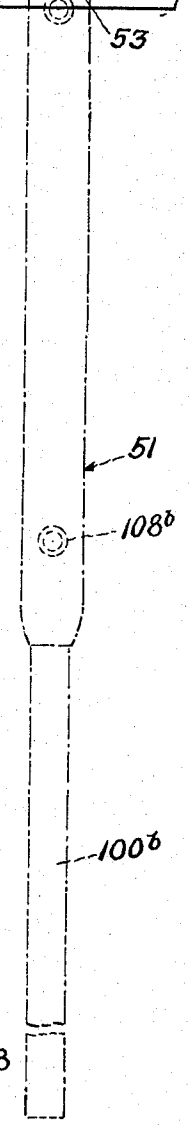


Fig. 20.





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United States Patent Office 2,875,008
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2,875,008

ROTATABLE LEG HINGE AND COVER FOR TABLE

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Application May 9, 1955, Serial No. 506,830

3 Claims. (Cl. 311—114)

This invention relates to collapsible separable sectional tables or other articles of furniture and more particularly to tables which may be separated into a plurality of smaller tables though it is noted that in some of the claims the invention is not limited to separable tables nor even to tables.

Objects of the invention are to provide an improved composite table or other articles of this kind which may have various shapes, sizes and heights and which may be separated into smaller tables of various shapes, sizes and heights.

Other objects of the invention are to provide improved articles of this kind which will be ornamental when the parts are attached together and when separated and to provide efficient and ornamental securing and adjusting means.

Additional objects of the invention are to effect simplicity and efficiency in such articles and to provide an extremely simple article of this kind which is easy, convenient, reliable and durable in operation, and economical to manufacture.

Still other objects of the invention will appear as the description proceeds; and while herein details of the invention are described in the specification and some of the claims, the invention as described in the broader claims is not limited to these, and many and various changes may be made without departing from the scope of the invention as claimed in the broader claims.

The inventive features for the accomplishment of these and other objects are shown herein in connection with a composite, separable sectional table which briefly stated includes a composite table comprising a plurality of separable tables.

The composite table comprises a composite table top comprising top sections detachably disposable in the same plane and having downturned edge aprons disposable against adjacent aprons of other sections. Means for releasably locking the sections together comprise alined female and adapter bushings passing through and secured to the adjacent aprons, the female bushing having internal female threads. The bore of the adapter bushing has a smooth portion adjacent to the male bushing and a shoulder remote therefrom. A plug in said carrying bushing is provided with threads loose in said smooth portion and adapted to be stopped by the shoulder and a smooth portion at said shoulder and an exterior head. A spring compressed between said head and the carrying bushing holds the plug retracted in the carrying bushing, and allows the threads to engage in the female threads to draw the aprons tightly together. Telescoping legs hinged to and beneath the section.

A leaf disposable on, and hinged at the outer edge on, each section has at its outer part a recess upwardly open when the leaf is on the section and receiving an anchoring block secured in said recess and provided with threaded openings therethrough and an ornamental hinged cover. A detachable telescoping leg has a threaded upper end disposable in said threaded opening when the leaf is moved outwardly to the same plane as the top section.

Each leg comprising adjustably telescoping sections has means for holding the telescoping legs in adjusted relative position to provide tables of different height.

In the accompanying drawing showing, by way of example, one of many possible embodiments of the invention,

Figs. 1 and 2 are perspective views of the composite table with the leaves extended and unextended respectively the lgs being adjusted for tables low in height;

Fig. 3 is a perspective view showing sections joined to make a table of unusual shape;

Fig. 4 is a bottom plan view of the composite table with leaves extended and legs disposed against the lower face of the table top;

Fig. 5 is an enlarged fragmental sectional view partly in section on the line 5—5 of Fig. 4, showing a leaf extended and the detachable leg in supporting position;

Fig. 6 is a perspective view of the anchoring block detached and open;

Fig. 7 is a fragmental horizontal sectional view partly in plan showing securing means for the block;

Fig. 8 is a fragmental side elevation, partly in section, showing the detachable leg;

Fig. 9 shows an enlarged section on the line 9—9 of Fig. 8;

Fig. 10 is a perspective view of a clip for holding the detachable leg in inactive position;

Fig. 11 is a fragmental sectional view partly in elevation showing the hinge of one of the hinged legs;

Fig. 12 is a fragmental elevation of another of the hinged legs;

Fig. 13 is an enlarged sectional view along the axis of the locking means for locking the sections together;

Fig. 14 is a sectional view showing the leaf lying on the table top and the hinge in side elevation;

Figure 14A is a section view showing hinge connection for table leaves;

Figs. 15 to 20 show a modified form of folding leg and details thereof;

Fig. 15 is a side elevation partly in section showing the leg in solid lines in folded position and in dotted lines in vertical position;

Fig. 16 shows an axial section of the leg, partly in elevation;

Fig. 17 is a perspective view of a detail of the leg hinge;

Figs. 18 and 19 are exploded perspective views of leg details; and

Fig. 20 is a section on the line 20—20 of Fig. 16.

My improved folding separable sectional table comprises a composite table top 10 comprising four top sections 12 of plywood or other suitable material, of equalateral right triangular shape and detachably disposable edge-to-edge in the same plane with the right angles all adjacent to form a square top. The lower face of the extreme edge on each section has a deep vertical apron 14, 15 extending from end to end, adjacent aprons being disposable flat against each other at their adjacent faces, which become exterior faces if the sections are separated. Releasable interlocking connecting units 16 (Figs. 3, 4 and 13) substantially midway between the ends and top and bottom of each pair of adjacent aprons 14 releasably hold the sections together.

Each connecting unit comprises axially alined female and adapter bushings 18, 20 passing transversely through the respective aprons and substantially meeting at the adjacent ends and provided at their remote ends with surrounding end flanges 22, 24 sunk into the apron and provided with screw holes receiving screws 26 securing the bushing in the apron. The female bushing 18 is provided with internal female threads 28 approximately throughout terminating slightly short of said adjacent ends. The

bore of the adapter bushing is provided with a deep countersink 30 at the flanged end, a short threaded portion 32 adjacent to the countersink, and with a large diameter smooth portion 34 adjacent to the meeting end. A pin or plug 36 in said carrying bushing is provided at its end adjacent to said meeting end, with male threads 38 forming a threaded portion shorter than and loose in said smooth portion 34 and adapted when rotated to be passed through the short threaded portion 32 of the female bushing, but when not rotated to be stopped thereby. The plug 36 has a smooth portion 40 slidable in the short threaded portion 32 and provided with a manipulating head 42 adapted to engage or be spaced from the flange. A tapered helical spring 44 compressed between said head 42 and the floor of the countersink 30, with its larger end in the countersink, is adapted when the sections are separated to yieldably press the male threads 38 against, but not into, said short threads 32 and to withdraw the male threads 38 within the carrying bushing to render the plug and bushing an inconspicuous ornament when the table sections are separated. Said spring 44 allows the male threads 38 to be pushed to and screwed into the female threads 28 to draw the plug head 42 tightly against the bushing and the aprons against each other to hold two or more of the sections together, as a single table top, while compressing the spring flat in said countersink.

Each top section is provided with three hinged telescoping legs, 46, 48, 50 (Fig. 4) or 51 (Figs. 15 and 16) having hinged ends, hinged by conventional hinges 52 (Fig. 11) or 54 (Fig. 12), or an improved hinge 53 (Figs. 15 to 18) to the lower face of the section near the corners of the section, one pair of legs 48, 50 being disposable side-by-side near and parallel to the longest apron of the section, the other leg 46 being disposable adjacent only to the female bushing 18 of the interlocking means, to leave the head 42 unobstructed. The legs of hinges 52 and 54 may be held in vertical table-supporting position by conventional means such as conventional toggle struts (not shown); or the legs 46 may be held vertical by a spring clip 55 (Figs. 10 and 11) having spring arms 56 embracing the leg and a base 58 secured by screws to the adjacent apron 14.

A thick table leaf 60, which may be of plywood or other suitable material, of the same size and shape as each top section is disposable on each top section 12 with corresponding edges in registration. Hinges 62 (Figs. 2 and 14) of the so-called invisible type are disposed at spaced points along the long edges of, and connect, the sections and leaves, whereby the leaves may lie flat on the adjacent top sections as in Fig. 2 or may be disposed outwardly in an outer position in the same plane as the top sections, as in Figs. 1 and 5, in which latter position the hinges 62 are invisible from above.

Each leaf has at its free corner a square recess 64 (Figs. 5 and 7) upwardly open at the top and closed at the bottom when the leaf is lying on the top section, and having its side edges parallel to the adjacent edges of the leaf.

A square nut-shaped leg rosette socket block 66 (Figs. 5 to 7) of ornamental metal fitted in said recess is provided with a central large threaded opening 68 therethrough, and with horizontal parallel dowel holes 70 parallel to side faces of the block between said opening and said side faces and receiving dowel pins 72 in said holes and bores 74 in said leaf midway between the wide faces of the leaf, the pins terminating near the edge face of the leaf and passing through said holes to hold the block firmly in place. The edges of the leaves may be provided with inwardly pointed V-grooves 76 receiving strips of wood 78 filling said grooves to hide the ends of said bores and pins and the edges of the plies of the plywood.

Each rosette block 66 has, at a margin thereof, an upwardly extended lug 80 flush with the face of the leaf, when on the top 12, and having a longitudinal bore therethrough receiving a pintle 82. A rosette top cover piece 84 of ornamental metal substantially fills the unoccupied upper part of the said recess 64 and is formed with spaced ears 86 snugly embracing said lug 80 with an easy swinging fit and receiving the hinge pintle 82 passing through said ears and the bore of said lug.

Said cover piece 84 with the lug fills the square recess forming an ornamental inlay in the leaf when the leaf is lying on the table top section as in Fig. 2, and is adapted to be disposed under the leaf and to automatically hang down when the leaf is moved to its outer position in the same plane as the top section, as in Fig. 5, thereby to expose said threaded opening 68 beneath the leaf to receive the threaded upper end 88 (Figs. 5 and 8) of a detachable tubular telescoping leg 90 of square cross-section having at its upper end a flanged body 92 secured by a cross pin 94 in said upper end with the flange 96 against said upper end, said body having an extension terminating in the threaded upper end 88 adapted to be received in said threaded opening 68 in a supporting position when the leaf is in said outer position as in Figs. 1 and 5. A pair of the U-shaped spring clips 54 (Fig. 10) of flat spring metal having their yoke portions 58 secured to the lower face of the top sections 12 are disposed in a position for the clips to yieldably hold the detachable leg when not in use in a position near and parallel to and near said pair of hinged legs 48, 50, as in Fig. 4.

Each hinged and detachable leg comprises an upper outer section 98 or 98*a* and a smaller lower inner section 100, both of square cross section, the lower section slidably fitting in the upper section. Both end portions of the upper section 98 or 98*a* are provided with axially alined openings 102, 104 (Figs. 8 and 9) and the upper end of the lower section is provided with opposite axially alined openings 106, the lower leg openings being alinable with the upper or lower openings of the upper section, when the lower legs are in telescoped or extended positions.

Axially alined detent members 108 (Fig. 9) each have an outer portion adapted slidably to fit in said alined openings and have a rounded-edged end face 110 substantially flush with the outer face of the upper leg and an enlarged diameter inner end portion 111 forming a shoulder disposable against the inner face of the inner section and provided with a circular inner end face seat 112. A helical spring 114 compressed between and fitting in said seat holds said shoulders against the inner section and allows the detent members to be pressed inward to clear the outer section to allow the inner section to be moved from one position to the other and be received in the openings 102 or 104 of the outer section to hold the inner sections in adjusted position. The length of said leg section may be such that in the respective positions of adjustment of the lower section, the legs are adapted for usual table height or for other desired heights.

The various parts of the table may be made of any suitable material. The top and leaves may be made of natural wood, plywood, fiber board or other suitable material. The legs may be made of metal, as in Figs. 8, 9, and 12 or of wood as in Figs. 15 to 20 as will be described hereinafter.

The improved form of hinge 53 is shown in Figs. 15 to 18 and comprises an elongated base 120 secured by screws 122 to the lower face of the top 12 and provided at its opposite side edges with substantially rectangular ear plates 124 perpendicular to the base and provided, if desired, adjacent to one end of the base with inwardly turned flanges 126 in the same plane perpendicular to the ear plates. The ear plates are provided approximately centrally thereof with axially alined perforations 128 receiving a shoulder bolt 130 passing through said perforations and having a head 132 engaging an ear plate

and a threaded outer end 134 and an outwardly facing shoulder 136 adjacent thereto both exterior to the outer face of the other plate. A nut 138 on said bolt engaging the shoulder is prevented by the shoulder from squeezing the plates toward each other.

For artistic reasons wooden legs are often desirable and Figs. 15, 16 and 20 show the wooden telescoping leg 51 having an upper outer wooden tubular section 98*b* of square cross section having secured in its upper end part 140 a wooden filler 142 integral with the section to provide a solid upper end portion 144 to the leg, said solid upper end portion 144 having therethrough a transverse bore received on said bolt 130 between the plates and a rounded end face 146 coaxial with the bore.

One of said ear plates remote from the apron is provided with an arcuate slot 148 (Fig. 17) of about 90 degrees or other angular length concentric with the adjacent perforation 128 and provided at each end with a circular enlargement 150. Said upper end portion is provided with a cylindrical recess 152 axially alinable with the said enlargements 150 respectively when the leg is in folded or vertical position and having an open end adjacent to the slot and a closed end 154 remote therefrom and receiving a cylindrical thimble 156 fitting fast in said recess and having a closed end 158 against the closed end of the recess and an open end 160 (Fig. 18) within and near the open end of the recess and receiving a bushing 162 force fitted in said open end of the thimble and having a flange 164 thereon resting on said open end flush with the outer face of the leg.

A detent member 166 having an intermediate portion 168 slidably fitting in said bushing has an inner end flange 170 engageable against the inner end of the bushing, and an outer reduced diameter portion 172 engageable in either of said enlargements 150 and provided with a rounded outer end face. A helical spring 123 is compressed between the detent member and the closed end 158 of the thimble for yieldably holding said outer portion in either of the enlargements 150 to hold the leg in adjusted vertical or folded position.

The leg 51 (Fig. 16) comprises said upper section 98*b* and a smaller solid wood lower inner section 100*b*, both of square cross section, the lower section slidably fitting in the upper section, both end portions of the tubular portion of the upper section being provided with opposite axially alined openings 104*b*, 108*b* lined with protective rings 174. The upper end portion of the lower leg section 100*b* is provided with a transverse bore 176 alinable with the upper or lower openings 108*b*, 104*b*, when the lower legs are in telescoped or extended positions. A ferrule 178 in said bore provided at one end with a deep inner bearing flange 180 (Fig. 16) forming an inner shoulder 182 receives a bearing bushing 184 force fitted in the other end of the ferrule and forming an inner shoulder 186 and having a flange 188 thereon resting on said open end flush with the outer face of the lower section.

Axially alined detent members 192 respectively having an outer portion slidably fitting in said bearing flange and bushing and in the rings 174 of the alined openings 104*b*, 108*b*, each has a rounded-edged end face substantially flush with the outer face of the upper leg section, and an enlarged diameter inner end portion 194 forming a detent shoulder disposable against said one of said shoulders 182, 186 and provided with circular end face seat 196. A helical spring 198 compressed between and fitting against said seats holds said detent shoulders against the inner shoulders, allowing the detent members to be pressed inward to clear the outer section to allow the inner section to be moved from one position to the other.

The operation of the sections 98*b* and 100*b* and the detent members 192 is the same as the operation of the sections 98, 100 and the detent members 108.

Said top sections when all are secured together with the leaves lying thereon are adapted to provide a medium size square table, and when all leaves are extended to provide a large square table. When one or more leaves are extended non-square tables of unusual shape may be formed. When one or more or all of the top sections are separated, four or fewer triangular, square or unusual shapes are possible.

In closed or separated form my improved composite table may have a variety of uses, a few of which are as follows:

(1) In closed form, at normal height: dining table, card table, dinette table.

(2) In closed form, with legs retracted: cocktail table, coffee table, child's play table, patio table.

(3) In closed form, leaves extended, at normal height: large dining table, large dinette table, large buffet table.

(4) In closed form, leaves extended, legs retracted: large cocktail table, large coffee table, large patio table.

(5) In separated form, at normal height, triangular form: end tables, corner tables, buffet tables, patio tables.

(6) In separated form, legs retracted, triangular: snack tables, small end tables, small corner tables, small liquor tables.

(7) In separated form, leaves extended, at normal height: end tables, serving tables, corner tables, patio tables, card tables, and can be arranged in straight or angular rows and a wide variety of patterns.

(8) In separated form, leaves extended, legs retracted: radio tables, snack tables, ash tray tables, flower tables, corner tables, serving tables, small cocktail tables, ottomans, picnic tables, baby eating tables, record player tables, patio tables, and can be arranged in a variety of patterns.

I claim as my invention:

1. Means for securing the threaded upper end of a leg under a table leaf hinged to the edge of, and disposed in the plane of, a table top and disposable flat on the table top, said means comprising a rosette block sunk in the leaf remote from the hinged edge and having at a margin of the block an upwardly extended lug flush with the exposed face of the leaf when lying on the table top, said block having a vertical threaded bore therethrough; a rosette top cover piece of ornamental metal disposable on said block flush with said exposed face and hiding said bore and formed with spaced ears snugly embracing said lug with an easy swinging fit; and a hinge pintle passing through said lugs and ears; said cover piece with the lug forming an ornamental inlay in the leaf when the leaf is lying on the table top and being automatically moved by gravity to a hanging position when the leaf is moved to a position in the same plane as the top, thereby to expose said threaded bore to receive the threaded upper end of said table leg.

2. Means for securing the threaded upper end of a leg under a table leaf disposable on the table top, said means comprising a block sunk in the leaf near the free margin thereof and having a vertical threaded bore therein; and an ornamental cover piece hinged to the block flush with the exposed face of the leaf on the table top and hiding said bore; said cover piece forming an ornamental inlay in the leaf when the leaf is lying on the table top and automatically exposing said threaded bore to receive the threaded upper end of a table leg when the leaf is moved outwardly horizontally.

3. Means for receiving the upper end of a leg under a table leaf disposable on the table top, said means comprising a block in the leaf near the margin thereof and having a vertical threaded bore therethrough; and a cover piece freely hinged to the block flush with the exposed face of the leaf when on the table top.

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