

[54] **ADAPTABLE SUPPORT FOR USE ON UNEVEN SURFACES**

[76] Inventor: **De W. Ritchie**, 3016 N. Florida St., Arlington, Va. 22207

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

[58] **Field of Search**..... 248/188.3, 188.2, 163, 248/164, 431, 432

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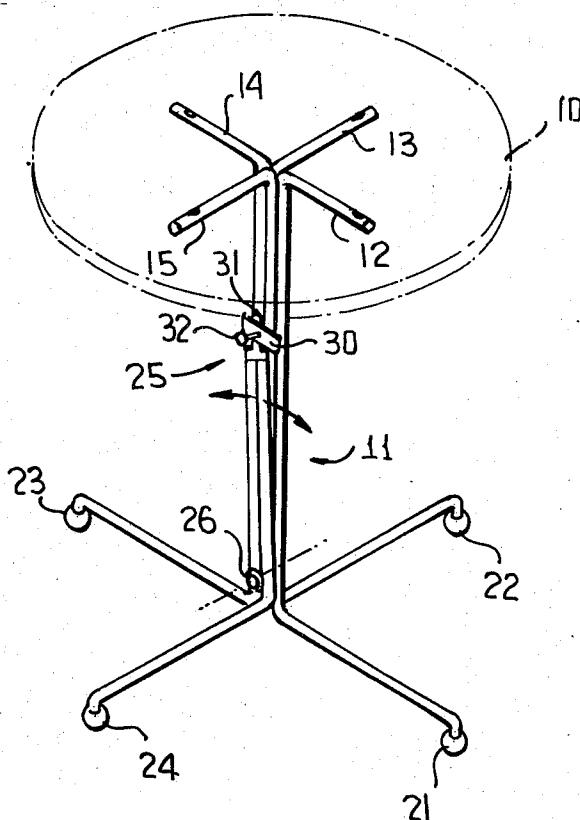
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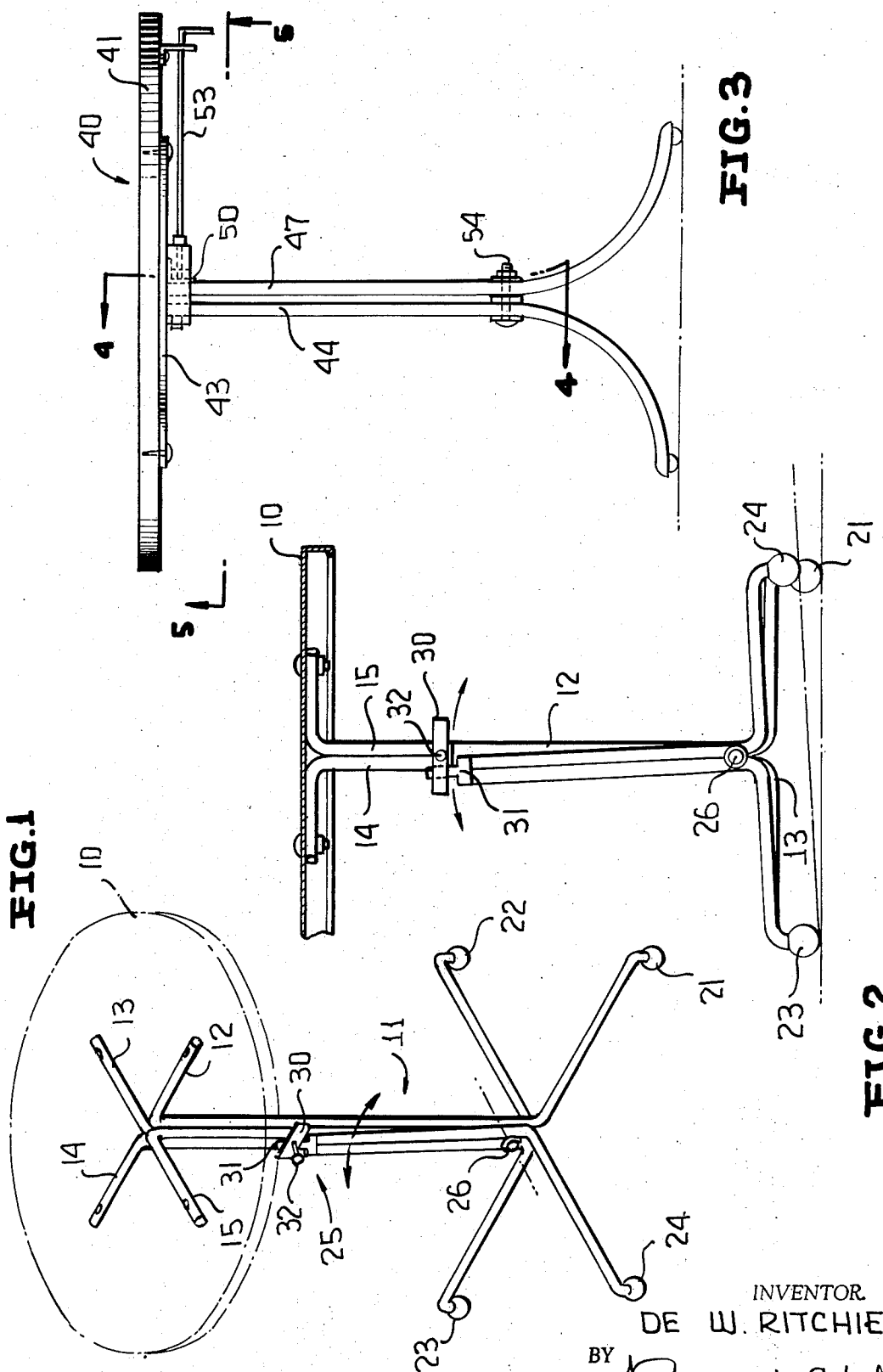
Primary Examiner—Marion Parsons, Jr.
Attorney, Agent, or Firm—Rose & Edell

[57] **ABSTRACT**

A four-point support for a table or the like is adapted to rest without wobbling on an uneven surface by securing an adjacent two of four legs together and mounting these two legs for pivotal motion in a plane perpendicular to the surface. When the support rests on an uneven surface the two pivoting legs are pivoted until all four legs rest on the surface; the pivoting legs are then locked in position to provide a stable, wobble-free four legged support. In an alternative embodiment the four-point support comprises a pair of spaced parallel pedestals, each having two support feet. One pedestal is rendered pivotable to permit its adaptation to uneven surfaces.

7 Claims, 8 Drawing Figures





INVENTOR
DE W. RITCHIE
BY
Rose & Edell
ATTORNEYS

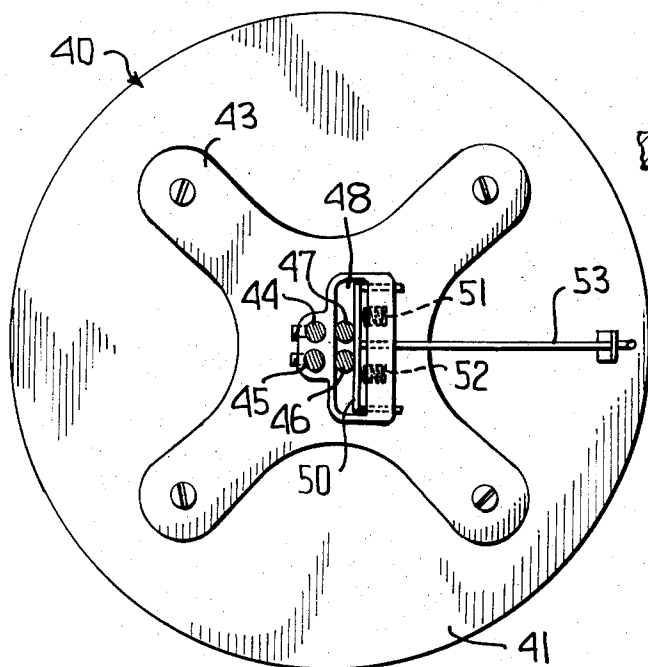


FIG. 5

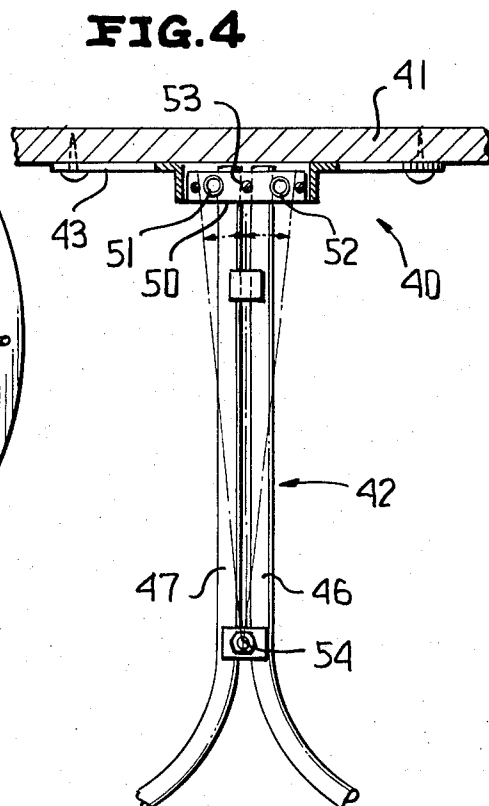


FIG. 4

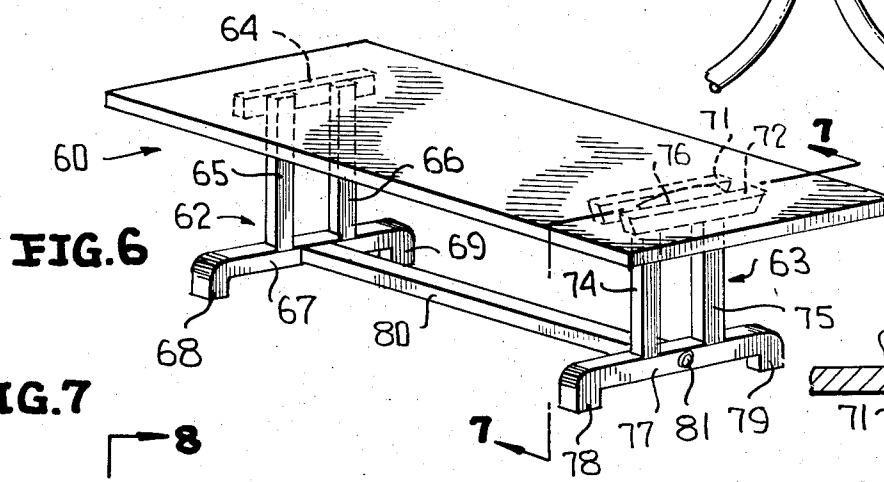


FIG. 6

FIG. 7

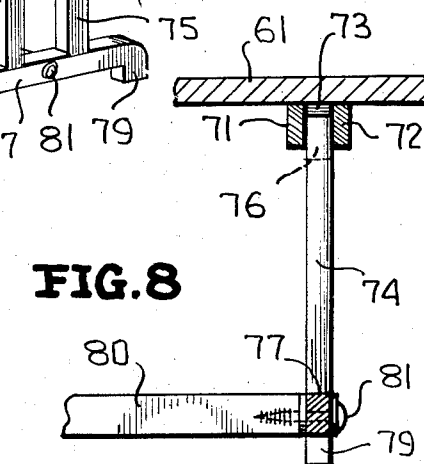
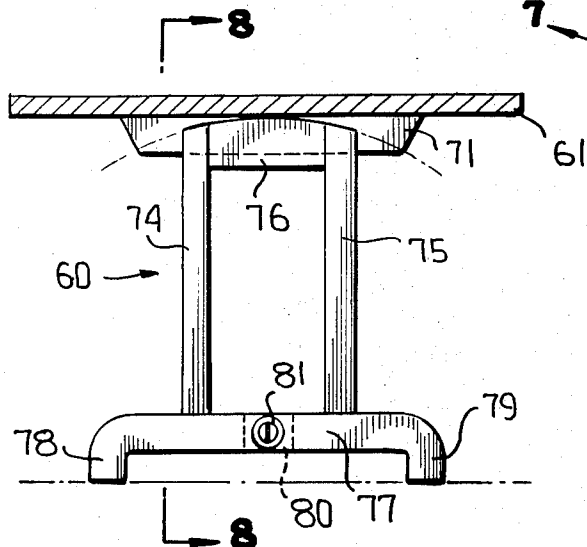


FIG. 8

INVENTOR
DE W. RITCHIE

BY

Rose & Edell
ATTORNEYS

ADAPTABLE SUPPORT FOR USE ON UNEVEN SURFACES

BACKGROUND OF THE INVENTION

The present invention relates to supports for tables, chairs, optical equipment, etc. More particularly, the present invention provides a four-point support capable of resting on uneven surfaces without wobbling.

Four-point supports are subject to instability in the form of wobbling when resting on uneven surfaces. A typical example may be found in outdoor or patio furniture which usually rests on such uneven surfaces as brick, flagstone, grass, etc. Quite often this furniture wobbles between two positions when in use, a fact which results in spills, accidents, and certainly a lack of comfort.

A three-point support does not wobble regardless of the nature of the surface on which it rests. However, three-point supports are easily tipped over and in this regard are much less desirable than four-point supports.

It is therefore one object of the present invention to provide a four-point support having the same immunity to wobble on uneven surfaces as three-point supports but which retains the inherent stability of four-point supports.

It is another object of the present invention to provide a four-point support for tables, chairs, and the like which is readily adjustable to be wobble-free when resting on an uneven surface.

SUMMARY OF THE INVENTION

According to the present invention, two adjacent legs of a four-legged support are secured together and rendered pivotable in a plane perpendicular to the surface on which the support is to rest. When placed on an uneven surface the pivotable legs are pivoted until the bottoms of all four legs touch the ground. The pivoting legs are then locked in place to provide a wobble-free four legged support. This inventive concept is described for both single and double-pedestal type supports.

BRIEF DESCRIPTION OF THE DRAWINGS

The above and still further objects, features and advantages of the present invention will become apparent upon consideration of the following detailed description of specific embodiments thereof, especially when taken in conjunction with the accompanying drawings, wherein:

FIG. 1 is a view in perspective of a support for a single pedestal table according to the present invention;

FIG. 2 is a plan view in side elevation of the table of FIG. 1;

FIG. 3 is a plan side elevation of a support for another single pedestal table according to the present invention;

FIG. 4 is a view in section taken along lines 4—4 of FIG. 3;

FIG. 5 is a view of the underside of the table of FIG. 3;

FIG. 6 is a view in perspective of a double-pedestal table supported in accordance with the present invention;

FIG. 7 is a view in section taken along lines 7—7 of FIG. 6; and

FIG. 8 is a view in section taken along lines 8—8 of FIG. 7.

DESCRIPTION OF PREFERRED EMBODIMENTS

Referring specifically to FIGS. 1 and 2 of the accompanying drawings, a table top 10 is secured by screw adhesive, or the like atop a support member generally designated by the numeral 11. The support member comprises first and second fixed support legs 12 and 13 and third and fourth pivoting support legs 14 and 15. Fixed leg 12 includes a vertical segment whose ends are bent at right angles in a common plane. The bottom right angle bend has a support foot secured thereto and adapted to rest on the ground, floor or other surface. Fixed leg 13 is identical in configuration to leg 12 and includes support foot 22. Legs 12 and 13 are positioned with their vertical sections co-extensive and secured to one another, the two legs being oriented in mutually perpendicular planes. The horizontally extending upper segments of legs 12 and 13 define a plane on which table top 10 is supported, the table top preferably being secured to support 11 by screws, adhesive, or the like.

Pivoting legs 14 and 15 are similar to fixed legs 12 and 13 except for the fact that legs 14 and 15 are discontinuous at some point, preferably near the top, of their vertical segments. Above the discontinuity, designated generally by the numeral 25, the vertical segments of legs 14 and 15 are secured to one another and to the corresponding sections of legs 12 and 13. The horizontally-extending upper segments of legs 14 and 15 are co-planar with the horizontally-extending upper segments of legs 12 and 13, the four horizontally-extending segments being spaced by 90°.

Below discontinuity region 25 legs 14 and 15 are fixedly secured to one another along their vertical sections. Feet 23 and 24 depend from the lower horizontally-extending segments of legs 14 and 15, respectively. Proximate the bottom of their vertical segments, legs 14 and 15 are pivotally mounted by means of bolt 26 or the like onto a like portion of the vertical segments of legs 12 and 13. Pivoting is about an axis parallel to the ground or other support surface so that the vertical segments of legs 14 and 15 subsisting below region 25 can rotate together in a vertical plane. To this end, the portions of legs 14 and 15 below discontinuity region 25 are movable relative to the portions of these legs above region 25.

Secured to the upper fixed portions of legs 14 and 15, just above discontinuity region 25, is a slotted guide plate 30, the slot subsisting in a vertical plane. Guide plate 30 extends transversely of the vertical sections of legs 14 and 15. A fingerlike projection 31 is secured to the lower, movable portions of legs 14 and 15, just below discontinuity region 25. Projection 31 is arranged to move captively in slotted guide plate 30 as the lower portions of legs 14 and 15 pivot. The width of the slot in guide plate 30 is adjustable by means of thumbscrew 32 or the like in order to selectively restrict or render free the movement of projection 31 in the slot. Specifically, when thumbscrew 32 is tightened, the wall of guide plate 30 frictionally engages projection 31 to prevent it from moving.

In utilizing the table illustrated in FIGS. 1 and 2, the table is placed on the support surface at a location where it is to be utilized. Thumbscrew 32 is loosened to permit projection 31 to slide in slotted guide plate

30. This permits the lower section of legs 14 and 15 to pivot together about point 26, thereby permitting feet 23 and 24 to adapt to the support surface, no matter how uneven that surface may be. Once all four feet 21, 22, 23 and 24 are in contact with the support surface, thumbscrew 32 is tightened and legs 14 and 15 are locked in place. The table is thus firmly supported on all four legs without danger of wobble.

The particular vertical positions of pivot point 26 and discontinuity region 25 may be varied; however, the greater the spacing between the two, the greater the range of adaptability by the support to uneven surfaces. This is because the greater spacing between the pivot point and the discontinuity region produces a greater arc over which projection 31 may swing.

It will be appreciated that the important aspect of the present invention is the fact that at least the lower portions of two adjacent legs are pivotable relative to the other legs. This pivoting action permits one of feet 21, 22, 23 and 24 to contact the support surface and yet not reside in the plane defined by the other three feet.

A modified version of the table of FIG. 1 is illustrated in FIGS. 3, 4 and 5. Table 40, like the table of FIG. 1, is a single pedestal table and includes table top 41 secured atop support 42. A mounting plate 43 is secured to the underside of table top 41 and to the tops of two upstanding legs 44, 45 of support 42. Mounting plate 43 is provided with a guide slot 48 in which the tops of two movable legs 46, 47 are disposed. Guide slot 48 is bounded on one side by a friction plate 50 which is urged by compression springs 51, 52 into engagement with the tops of legs 46 and 47. When these legs are so engaged they are restrained from sliding in slot 48. An actuation rod 53 is secured to friction plate 50 and is arranged to be moved in opposition to the action of springs 51, 52. In this manner, friction plate 50 may be disengaged from legs 46, 47 at will, thereby permitting the tops of these legs to slide within slot 48.

Legs 44, 45 are secured to one another and legs 46, 47 are secured to one another. Each of the legs extends downwardly, substantially parallel to another, until reaching a pivot point 54 at which legs 46, 47 are pivotally mounted on legs 44, 45. Below pivot point 54 each of the legs curves outwardly to provide four feet adapted to rest on the ground or other support surface.

When table 40 is placed on the support surface where it is to be used, rod 53 is actuated to disengage friction plate 40 from the tops of legs 46, 47. The legs automatically conform to any unevenness in the support surface by pivoting together about point 54, the tops of the legs sliding as necessary in slot 48. When all four feet have made firm contact with the support surface, rod 53 is released to re-engage the tops of legs 46, 47 with friction bar 50. The table is now locked in a stable position, without wobbling, regardless of the fact that the support surface may be uneven.

Referring to FIGS. 6, 7 and 8 of the accompanying drawings, the present invention is illustrated in a two-pedestal embodiment. Specifically, table 60 includes a table top 61 of generally rectangular configuration and supported at either end by support pedestals 62, 63. Pedestal 62 includes a bracket 64 secured to the underside of table top 61 and from which two vertical support beams 65, 66 depend. Beams 65 and 66 are supported on horizontal base member 67, the ends of which turn downward at right angles to form respective

feet 68, 69. The latter are adapted to rest on a support surface such as the ground, a floor, etc.

Support pedestal 63 is similar to pedestal 62 except that it is not fixedly secured to the underside of table top 61. Rather, two parallel brackets 71, 72 are secured to the underside of table top 61 and define a channel 73 therebetween. Channel 73 extends parallel to a plane defined by members 65, 66 and 67 of pedestal 62. Pedestal 63 includes two vertical support beams 65, 66, and joined at their tops by a cross beam 76. The top of cross beam 76 is arcuate to permit it to slide in channel 73. Vertical beams 74, 75 are supported on horizontal base 77, the ends of which turn downward to form feet 78, 79. The latter are adapted to rest on the ground or other support surface.

Pedestals 62 and 63 subsist in substantially parallel planes and are joined by a brace beam 80 extending between bases 67 and 76 and oriented perpendicular to both bases. Brace beam 80 is fixedly secured to base 67 of pedestal 62 but is pivotally joined at 8 to base 76 of pedestal 63. By this expedient pedestal 63 is permitted to rotate about point 81 whereby cross beam 76 slides in channel 73.

When table 60 is placed on an uneven support surface, pedestal 63 automatically pivots until both feet 78, 79 contact the support surface. A locking mechanism may be provided if desired; however double pedestal tables are usually sufficiently heavy as to preclude the possibility of inadvertent pivoting of pedestal 63.

The invention as described above is applicable to chairs, camera supports, and other elements for which four-legged supports are desirable. In addition, the particular configurations described and disclosed are not of themselves limiting on the scope of the invention. Rather, the important aspect of the invention is that two adjacent legs of a four-legged support be pivotable together relative to the other two legs to permit the four-legged support to adapt to an uneven support surface.

While I have described and illustrated specific embodiments of my invention, it will be clear that variations of the details of construction which are specifically illustrated and described may be resorted to without departing from the true spirit and scope of the invention as defined in the appended claims.

I claim:

1. A four-point support member comprising: four spaced contact members adapted to contact and rest upon a support surface; means securing an adjacent pair of said contact members to one another; and means pivotally mounting said adjacent pair of contact members relative to the others of said contact members, said adjacent pair of contact members being pivotable in a plane perpendicular to said support surface to permit all four contact members to contact said support surface; wherein said support member is of the single pedestal type, said contact members including individual legs, said legs each including a vertically extending section, said vertically extending sections being disposed immediately adjacent one another, wherein said adjacent pair of legs are pivotally mounted on the other two legs proximate the lowest point on said vertically extending sections.
2. The four-point support member according to claim 1 further comprising locking means for at will inhibit-

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ing pivotal movement of said adjacent pair of legs relative to said other legs.

3. The support member according to claim 2 wherein said locking means includes: a channel extending in the plane and direction of pivotal motion of said adjacent pair of legs; side means secured to said adjacent pair of legs and positioned to slide in said channel as said adjacent pair of legs pivots; and operable means for selectively restricting the width of said channel to frictionally engage said slide means and prevent sliding thereof in said channel.

4. The support member according to claim 3 wherein said operable means includes: a friction plate defining one side wall of said channel; spring means for continuously urging said friction plate into engagement with said slide means, and an actuator for selectively retracting said friction bar against the action of said spring means.

5. A support structure arranged to adjust to uneven surfaces to provide level and stable support, said struc-

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ture comprising:

vertically-extending pedestal means positioned centrally of said structure; and

four support legs extending radially outward from the lower extremity of said pedestal means, an adjacent pair of said legs being secured together at said lower extremity of said pedestal means and pivotally mounted on said pedestal means about a single horizontally-extending axis such that both of said adjacent pair of legs rotate together about said axis relative to said pedestal means.

6. The structure according to claim 5 wherein said horizontal axis extends through said pedestal means proximate its corner extremity.

7. The structure according to claim 6 further comprising locking means for at will inhibiting pivotal movement of said adjacent pair of legs relative to said pedestal means.

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