Jan. 26, 1965 G. F. BECKWELL 3,167,290

COLLAPSIBLE SELF-LEVELING SUPPORT STRUCTURE

Filed July 24, 1963

Fig. 1.

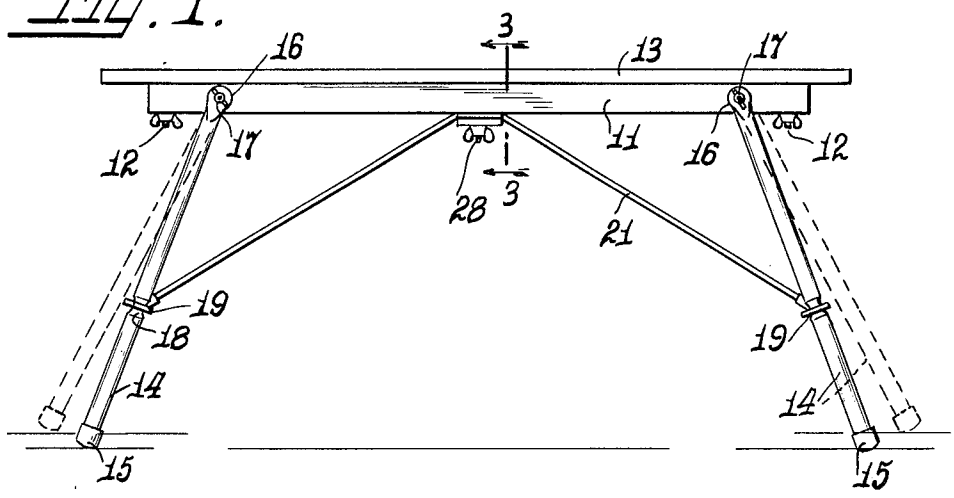


Fig. 2.

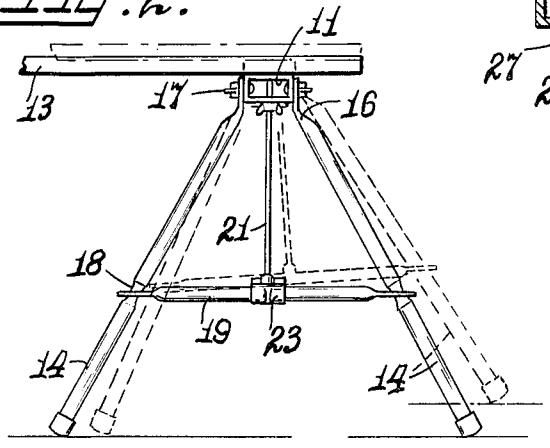


Fig. 3.

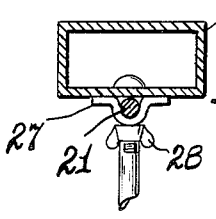


Fig. 4

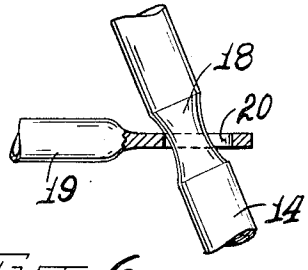


Fig. 5.

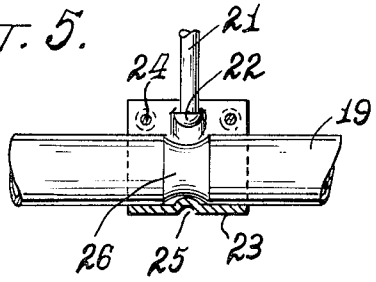
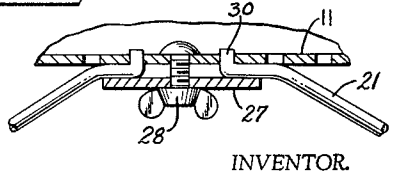


Fig. 6



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COLLAPSIBLE SELF-LEVELING SUPPORT STRUCTURE

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6 Claims. (Cl. 248—163)

The present invention relates to improvements in supports and is more particularly concerned with the novel construction and assembly of a collapsible self-leveling leg structure for supporting a table top or the like.

More specifically, the invention contemplates the novel construction and assembly of a leg structure embodying novel structural characteristics that permit it to be adjusted readily as to height and which will be self-leveling irrespective of any irregularities in the level of the floor surface upon which it is rested. In the exemplary embodiment herein disclosed, the various components of the structure are interconnected in a manner to permit relative shifting or twisting of selected components so as to cause re-adjustment automatically.

It is, therefore, an object of the invention to provide a vertically adjustable support structure.

Another object is to provide a novel assembly that readily adjusts itself to support surface irregularities.

Another object is to provide a structure of the character referred to which is not expensive or difficult to manufacture, is easy to adjust and is self-leveling.

With the foregoing and such other objects and advantages in view, which will appear as the description proceeds, the invention consists of certain novel features of construction, arrangement and combination of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in form, proportion, size and minor details of the structure may be made without departing from the spirit of the invention.

Referring to the drawings in which the same characters of reference are employed to identify corresponding parts:

FIG. 1 is a side elevational view of a leg structure embodying the invention;

FIG. 2 is an end elevational view thereof, showing the structure adjusted, in dotted lines;

FIG. 3 is an enlarged detail sectional view taken on line 3—3 of FIG. 1;

FIG. 4 is an enlarged detail sectional vew of the lateral brace and leg connection;

FIG. 5 is an enlarged detail view, partly in section, of the brace mounting; and

FIG. 6 is a fragmentary longitudinal sectional view of the ridge bar.

Referring to the exemplary disclosure in the accompanying drawings, the improved support structure includes a hollow ridge bar **11** that is substantially square in section and upon which is secured, as by bolts **12**, a table top **13** or the like. Two pairs of legs **14** are secured, one pair at each end, to the ridge bar **11**. The legs of each pair diverge outwardly downwardly and each leg comprises a length of tubular or rod stock which may have a soft cushion or cap **15** on its lower end. The upper end of each tubular leg is flattened, as at **16**, and the legs of each pair are secured to the ridge bar by bolts **17**.

Each leg **14** has an area of reduced diameter, as at **18**, over each of which is fitted, loosely, one end of a transverse tie bar **19**, said bar ends being flattened and apertured as shown at **20**. This manner of connection affords sufficient flexibility in the tie bar-leg connection to enable the legs to adjust themselves to any irregularity in the support surface, as illustrated in dotted lines in FIG. 2.

A brace **21** is connected to each transverse tie bar **19**. As shown, this brace is comprised of a rod having a head **22** at one end. As best shown in FIG. 5, a split collar **23** is fitted over the tie bar **19** and the head **22** of the brace rod is engaged therein, as shown, whereupon securing screws **24** are tightened. The collar **23** has a cordal dimple **25** therein which is seated in an annular recess **26** in the tie bar so as to permit the brace rod assembly to rotate relative to the tie bar but be held against longitudinal shifting therealong. The other end of said brace rod **21** is bent and seated beneath a clamp plate **27** (FIG. 3) that is secured to the under surface of the ridge bar by a bolt-nut assembly **28**. The seated portion terminates in an upwardly extending peg **30** which seats in an opening in the underside of the ridge bar **11**. By providing a series of holes the brace rods are adjustable in the clamp plate so as to permit angular adjustment of the legs for height adjustment.

It should be evident from the foregoing detail description that the support structure may be adjusted as to height by the simple expedient of adjusting the brace rods **21** relative to and along the ridge bar **11** and that any variation in the height of the surface upon which the legs rest is compensated for by the fact that the various connections, except the pegs, between the brace rods, the tie bars and the legs are loose. This looseness permits the legs to adjust their positions relative to the support surface, such position variations being absorbed by the inherent ability of the ridge bar to twist the amount necessary to insure that all four legs will rest upon said surface.

As many possible embodiments may be made of the invention, and as many changes might be made in the embodiment above set forth, it is to be understood that all matters hereinbefore set forth or shown in the accompanying drawings are to be interpreted as illustrative and not in a limiting sense.

What I claim and desire to secure by Letters Patent of the United States is:

1. A support structure comprising, in combination, a ridge bar, a pair of legs pivotally connected to said ridge bar, a tie bar loosely connected to and bridging the legs of each pair of legs, a collar slidable on each tie bar, an annular recess in said tie bar over which the collar rests, means in said collar engageable in the annular recess, and brace rods one connected to each collar and to the ridge bar.

2. In a support structure, a leg assembly comprising a pair of legs, an annular recess in each of said legs between their ends, and a tie bar connecting said legs, said tie bar having apertured end portions embracing the respective legs in the area of the annular recesses and having binding engagement therewith.

3. In a support structure, a leg brace assembly comprising a pair of legs, a tie bar bridging said legs, an annular recess in said tie bar, a brace rod, a bracket connecting one end of the brace rod to said tie bar, and means in said bracket engageable in said recess to prevent longitudinal shifting of the bracket along said tie bar.

4. A support structure comprising, in combination, a ridge bar having a series of openings in one face thereof, a pair of legs pivotally connected to said ridge bar, a tie

bar loosely connected to and bridging the legs of each pair of legs, a collar slidable on each tie bar, an annular recess in said tie bar over which the collar rests, means in said collar engageable in the annular recess, and a brace rod connecting each collar to the ridge bar, each brace rod having one end arranged to seat in an opening of said series in the ridge bar, the opening seats used determining the adjustable height of the support structure.

5. A support structure comprising, in combination, a ridge bar, a pair of legs pivotally connected to each end of said ridge bar, an annular recess in each leg, a tie bar bridging the legs of each pair of legs and loosely engaged at their ends in said annular recesses, and brace rods adjustably connected one to each tie bar and to the ridge bar.

6. The structure recited in claim 5, in which the brace rods are detachably connected to the related tie bar.

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