Feb. 14, 1961 F. WALLIN 2,971,803

MULTI-POSITION LEG BRACKET

Filed July 6, 1959

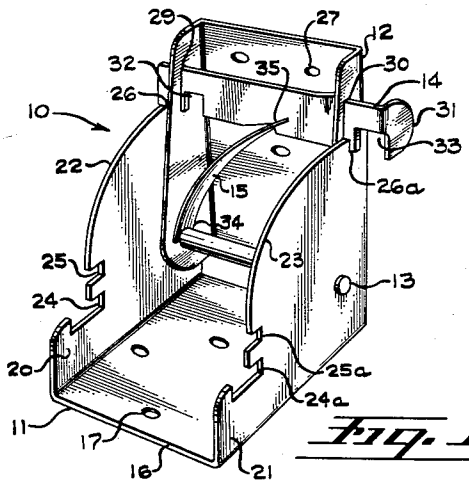


Fig. 1

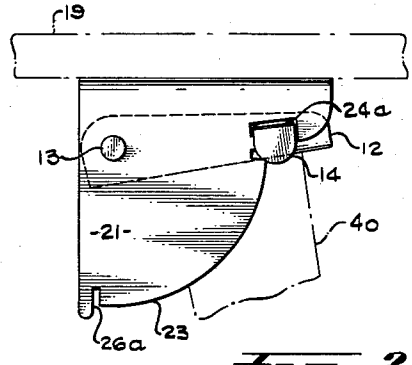


Fig. 2

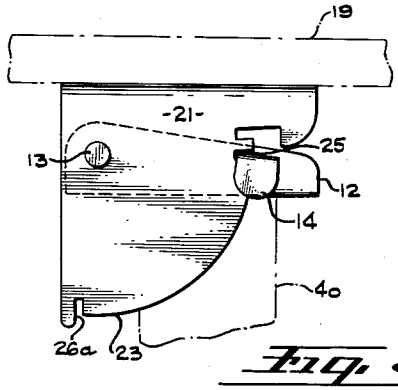


Fig. 3

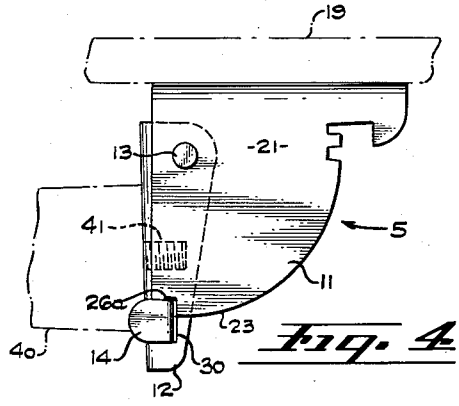


Fig. 4

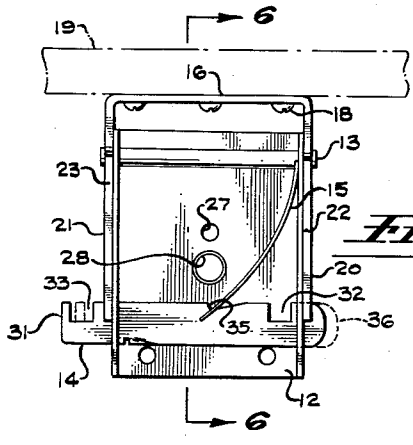


Fig. 5

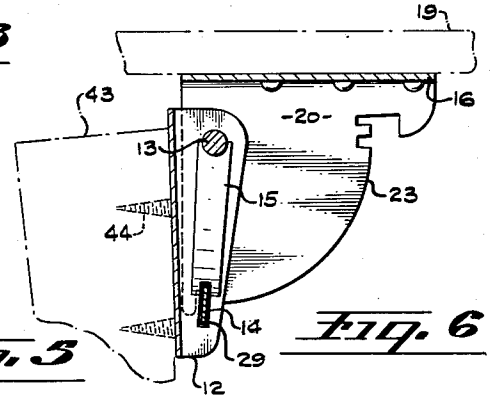


Fig. 6

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MULTI-POSITION LEG BRACKET

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This invention relates generally to folding leg tables, and more particularly to a hinge bracket which can be positively locked in a plurality of leg positions by means of a resilient leaf spring.

It is common practice in the manufacture of folding leg tables to attach the table leg to the table by means of a hinged bracket which can lock the leg in a folded or extended position. The bracket assembly is comprised principally of a table bracket detachable to the underside of the table top by means of screws, and a leg bracket hinged thereto. The leg bracket is adapted to receive any of a wide assortment of possible table legs; for example, the table leg may be an ordinary two-by-two beam, or a turned wooden leg, or a metal tube leg. The latter two generally have a threaded stud projection which can be screwed into a threaded receiving bore in the middle of the leg bracket.

The general structure of the metal hinge folding leg bracket has proven to be sound in principle, because of its strength at the hinge location, and its adaptability to many table tops and types of leg.

Unfortunately, however, previously known hinges of this type have failed to exhibit as much rigidity as is ordinarily desired. While quite satisfactory with very light weight tables and small legs, any increase in size has introduced shakiness because the previously known locking means have not been sufficiently positive, and because the helical spring operation used for these locking means has ordinarily been inclined to be too yielding and too responsive to table shaking. Part of the difficulty could be overcome by using a very expensive strong coil spring or two-stage coil spring, but such a solution of the problem is unsatisfactory for economic reasons.

It is therefore a major object of the present invention to provide a folding leg table bracket which does not use coil springs, and, instead, employs a stiff leaf spring providing positive action and strongly resistant to vibrational displacement, and yet very cheap to manufacture.

Another important object of the invention is to provide a location bolt means which is readily movable for the purposes of shifting the leg from one position to another, but which firmly locks the leg into place in a sharpely defined position, and holds it there without shakiness of the table.

Still another object of the invention is to provide the foregoing advantages in a folding table leg bracket which is easier to assemble than the heretofore known helical spring brackets, and is more rugged than said previously known brackets.

The invention will best be understood from the description of a specific embodiment, showing it in a simple preferred form. The following description may be read in connection with the accompanying drawings, in which:

Figure 1 is a perspective view of a folding leg bracket constructed according to the invention, as seen in a upside down position;

Figure 2 is a side elevational view of the bracket of the invention seen with a table leg and table top indicated in dashed outline, the table leg being shown locked in a slanting leg position;

Figure 3 is similar to the view of Figure 2 but shows the table shifted to a vertical position;

Figure 4 shows the view of Figures 2 and 3, but with the table leg shifted to folded position under the table top;

Figure 5 is a side elevational view as viewed in the direction of the arrow 5 in Figure 4; and

Figure 6 is a vertical sectional view taken through the bracket in the plane indicated in Figure 5, as seen when viewed in the direction of the arrows 6—6.

In Figure 1, a folding-leg table bracket is indicated generally by the numeral 10, and is seen to be comprised of an assembly of four parts: a table bracket 11 for attachment to the underside of a table, a leg bracket 12 to which a leg may be attached, a hinge pin 13 for hingeably mounting the leg bracket 12 in the table bracket 11, a locating bolt 14 for locking the leg bracket 12 in any of several desired positions, and a leaf spring 15, which resiliently urges the locating bolt 14 into locked position.

The table bracket 11 is a sheet metal stamping with the middle portion serving as an attachment plate 16, and provided with screw holes 17 through which screws 18 (see Figure 5) may be used to attach the bracket assembly 10 to the underside of a table top, indicated in dashed line outline by the numeral 19, in Figures 2 to 6.

The side portions of the table bracket 11 are folded perpendicularly to the attachment plate portion 16 to form side plates 20 and 21. These side plates are machined along their outer edges to provide arcuate guide surfaces 22 and 23, which serve to guide the locating bolt 14 in a manner to be described hereinafter. Arcuate guide surfaces 22 and 23 are also provided with matching locating slots 24 and 24*a*, 25 and 25*a*, and 26 and 26*a*.

The leg bracket 12 is a sheet metal stamping having the cross-section of a shallow channel, and is closely received between the side plates 20 and 21 of the table bracket 11, being hingeably mounted therebetween by means of the hinge pin 13, which extends through the side plates 20 and 21 as seen in Figure 5. The leg bracket 12 is provided with an assortment of openings for the attachment of various types of table legs. Ordinary wood legs may be attached by means of screw holes 27. A table leg having a threaded attachment stud may be threaded into a threaded bore 28, best seen in the elevational view of Figure 5.

The swinging end of the leg bracket 12 is provided, in its side flanges, with a pair of rectangular openings 29 and 30, for the reciprocal movement therein of the locating bolt 14.

The locating bolt 14 is a sheet metal strap with parallel plane side surfaces closely received in the locating slots 24 to 26, and is bent over at one end to provide a thumb plate 31. Also, the locating bolt 14 is slotted at two points, 32 and 33 to provide what may be termed shifting slots therein, since they make provision for shifting the position of the leg bracket 12 in a manner to be described hereinafter in connection with Figures 2 to 4.

In Figure 1, the locating bolt 14 is shown locked in position in locating notches 26 and 26*a*. It is urged into that position by means of a short stiff leaf of resilient spring steel, 15, which is held in the leg bracket 12, at one of its ends, by attachment by means of the hinge pin 13, as indicated at 34. The opposite end of the leaf spring 15 is received in a transverse spring notch 35 in the side of the locating bolt 14.

As seen in Figure 5, the leaf spring 15 urges the locating bolt 14 in the direction of the thumb plate 31, into locking position in the locating slots 24, 25, or 26. However, when it is desired to shift the leg bracket 12 from

one position to another, the locating bolt **14** is moved transversely of the leg bracket **12** to the position indicated in Figure 5 by the dashed outline **36**, by pressure applied to the thumb plate **31** to overcome the resistance of the leaf spring **15**.

The sectional view of Figure 6 reveals that the leaf spring **15** is disposed in a plane generally normal to the plane of the sides of the locating bolt **14**, which is seen in the sectional view to be a relatively thin strap of metal. It will be understood by those familiar with the art of springing, that this provides a very strong spring tension resistance in a very simple manner, and a very positive assembly into the spring notch **35**.

When the locating bolt **14** is shifted to the shifting position as indicated by the dashed outline **36** in Figure 5, the leg bracket **12** can be moved to and locked in the location of any one of the three sets of locating slots **24**, **25**, or **26**, as seen in Figures 2, 3, and 4, respectively. In these three figures, a table leg is shown in dashed outline, and indicated by the numeral **40**. This position of the table leg **40** assumes that it is mounted by setting a threaded stud indicated in Figure 4 by the numeral **41** into the threaded bore **28**, seen in Figure 5. However, it will be understood that a leg could also be mounted to the leg bracket **12** as indicated in Figure 6 by the leg **43**, which is attached by screws indicated in dashed outline at **44**.

It will be seen from the foregoing that I have eliminated the coil spring which has been a source of shakiness and bracket failure in the past. Moreover, the elimination of the coil spring has enabled me to change the shape of the locating bolt **14** from cylindrical to rectangular cross-section, thereby enabling me to lodge the shifting bolt with firm locking action in rectangular cross-sectioned locating slots **24** to **26**.

While I have described and illustrated a preferred specific embodiment of the invention, I do not mean my invention to be limited to its details, or to its use on tables only, nor to the particular disposition of the legs or the relatively moving parts on leg or table. It is my intention to cover all those modifications falling within the spirit of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A multi-position table-leg mounting which includes: a table bracket comprised of an attachment plate for fastening the mounting to the underside of the table, and two parallel side plates projecting substantially normally from said attachment plate; a leg bracket hingeably mounted adjacent one end thereof to and between said side plates for rotation between a plurality of positions relative to said attachment plate, the other end of said leg bracket being a swinging end; walls on said side plates defining arcuate guide surfaces along the path of the swinging end of said leg bracket, said side plates having matching location slots of rectangular cross-section formed therein at a plurality of locations for said leg bracket, said slots being open to said guide surfaces; a location bolt of rectangular cross-section closely receivable in said rectangular location slots, said location bolt being reciprocably mounted in the swinging end of said leg bracket and movable transversely in said swinging end between a leg bracket locking and a leg bracket shifting position; walls defining a pair of shifting slots in said location bolt, said shifting slots being in registry with said arcuate guide surface when said bolt is moved to said shifting position; and a leaf spring defining a surface generally normal to the sides of said location bolt, said leaf spring having one end anchored to said leg bracket and having the opposite end engaging said location bolt, the spring biasing said bolt into said locking position.

2. A multi-position table-leg mounting which includes: a table bracket comprised of an attachment plate for fastening said mounting to the underside of the table, and two parallel side plates projecting substantially normally from said attachment plate; a leg bracket of generally channel cross-section received between said side plates; a hinge pin between said side plates near one end of said attachment plate, said pin extending through said leg bracket near one end of the leg bracket for hingeably mounting said leg bracket for rotation between said side plates between a plurality of positions relative to said attachment plate, the other end of said leg bracket being a switching end; walls on said side plates defining arcuate guide surfaces along the path of the swinging end of said leg bracket, said arcuate guide surfaces having matching location slots of rectangular cross-section at a plurality of locations for said leg bracket; a location bolt of rectangular cross-section closely receivable in said rectangular location slots, said location bolt being reciprocably mounted in the swinging end of said leg bracket and moveable transversely in said swinging end between a leg bracket locking and a leg bracket shifting position; walls defining a pair of shifting slots in said location bolt, said shifting slots being in registry with said arcuate guide surface when said bolt is moved to said shifting position; and a leaf spring defining a surface generally normal to the sides of said location bolt, said leaf spring having one end anchored to said leg bracket at one end of said hinge pin, and having the opposite end engaging said location bolt to urge it into said locking position.

3. A multi-position table-leg mounting which includes: A table bracket comprised of an attachment plate for fastening said mounting to the underside of the table, and two side plates projecting from said attachment plate; a leg bracket hingeably mounted adjacent one end thereof to and between said side plates for rotation to a plurality of positions relative to said attachment plate, the other end of said leg bracket being a swinging end; walls on said side plates defining arc surfaces of respective circles centered at the position where said leg bracket is hingeably mounted to said side plates, said side plates having matching location slots of rectangular cross-section formed therein at a plurality of locations for said leg bracket; a location bolt of rectangular cross-section reciprocably mounted in the swinging end of said leg bracket and moveable transversely in said swinging end between a leg bracket locking and leg bracket shifting position, said bolt having shifting recesses formed therein, said shifting recesses being in registry with said arc walls respectively when said bolt is in the shifting position and being out of registry with said arc walls and being closely receivable in said rectangular location slots when said bolt is moved to locking position; and a leaf spring within said leg bracket and anchored at one end thereof adjacent one side of the leg bracket and in engagement at its other end with said location bolt between said side plates, the spring normally biasing said location bolt toward locking position.

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