July 8, 1958 G. P. KELLER 2,842,415

ADJUSTABLE LEG STRUCTURE

Filed June 25, 1957 2 Sheets-Sheet 1

FIG. 1

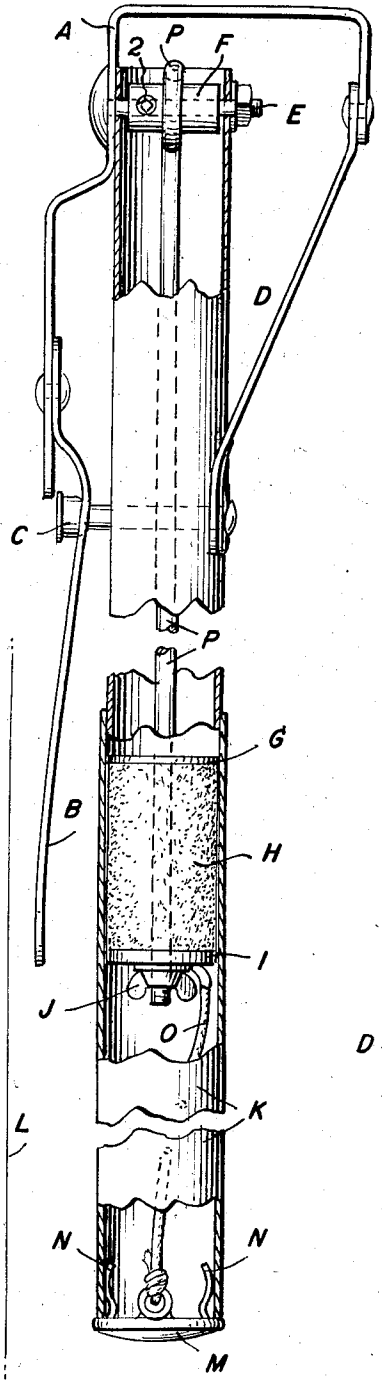


FIG. 2

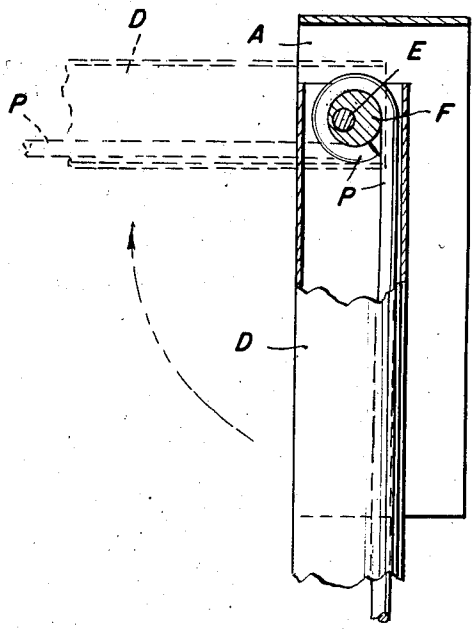


FIG. 3

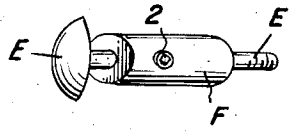
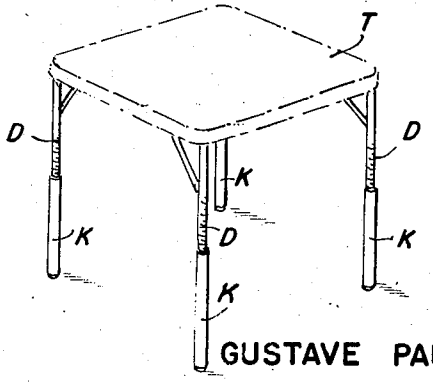


FIG. 4



INVENTOR

GUSTAVE PAUL KELLER

BY James M. Drysdale

ATTORNEY

July 8, 1958 G. P. KELLER 2,842,415

ADJUSTABLE LEG STRUCTURE

Filed June 25, 1957 2 Sheets-Sheet 2

FIG. 5

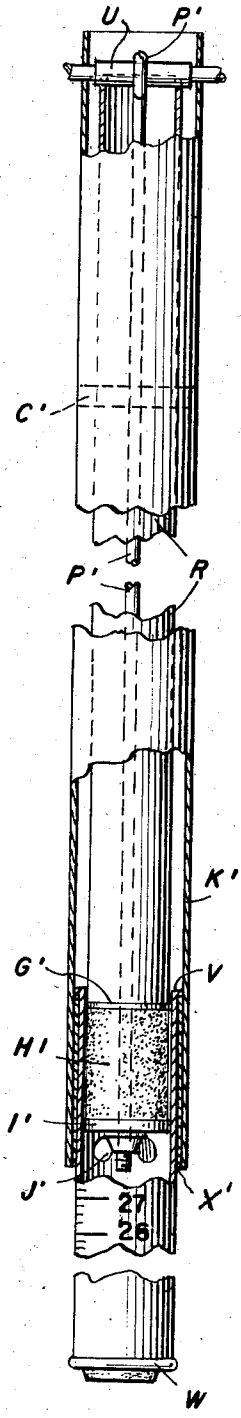


FIG. 6

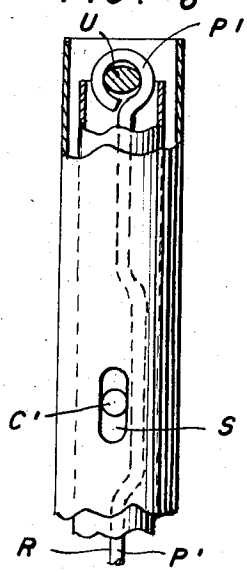


FIG. 7

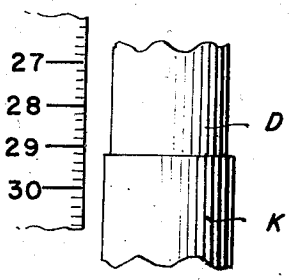


FIG. 8

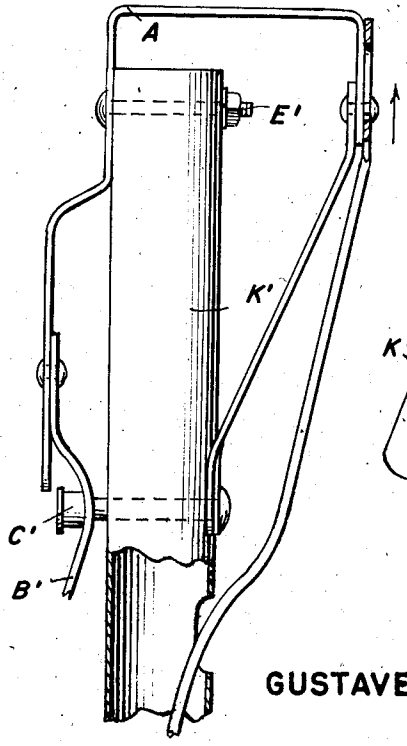
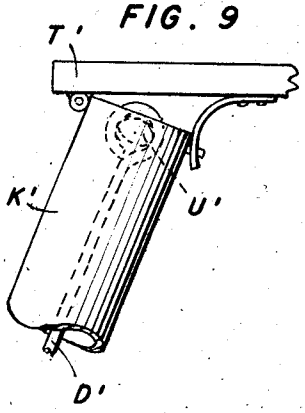


FIG. 9



INVENTOR

GUSTAVE PAUL KELLER

BY James M. Drysdale

ATTORNEY

United States Patent Office 2,842,415
Patented July 8, 1958

2,842,415

ADJUSTABLE LEG STRUCTURE

Gustave Paul Keller, Long Beach, Calif.

Application June 25, 1957, Serial No. 667,746

4 Claims. (Cl. 311—39)

The main object of this invention is to provide novel and improved means to lock the adjustable leg structure to adapt furniture to variable heights such as a coffee or cocktail table in its low position of adjustment to a standard height card table at maximum height, or a table low enough for small children at its low position to one high enough for an adult to use when he is standing, and to provide leg-supported furniture of any intermediate height for particular purposes and for use by people of various heights sitting or standing.

The invention also has for its objects to provide such means that are positive in operation, convenient in use, easily adjusted to a working position and easily disconnected therefrom, economical of manufacture, relatively simple, and of general superiority and serviceability.

The invention also comprises novel details of construction and novel combinations and arrangements of parts which will more fully appear in the course of the following description.

While the invention that has been illustrated and described is now regarded as the preferred embodiment, the construction is, of course, subject to modifications without departing from the spirit and scope of the invention.

It is, therefore, not desired to restrict the invention to the particular forms of construction illustrated and described, but to cover all modifications that may fall within the scope of the appended claims.

It will be noted that with the construction disclosed, there are no spring actuated locking elements to get out of order.

While the invention is primarily designed for application to four legged tables and is so illustrated in the drawings, it is to be understood that the same is applicable to various types of furniture such as chairs, stools, stands and the like.

These and more detailed and specific objects of my invention will be disclosed from the following detailed description of typical preferred forms of apparatus, throughout which description reference is made to the accompanying drawings in which:

Fig. 1 is a bottom plane view, partly in section, of a common type of card table corner leg bracket assembly in folded position.

Fig. 2 is an under-side view, partly in section, looking in a direction at a right angle to Fig. 1—in other words Fig. 2 is a side view of Fig. 1.

Fig. 3 is a perspective view of the eccentric cam with the bolt mounted therein.

Fig. 4 is a perspective view of a table construction provided with the leg structure of the present invention.

Fig. 5 is a view, partly in section, of a modified form of leg extension assembly with extendable part fitted inside upper leg part.

Fig. 6 is a side view of Fig. 5, partly in section showing the comparatively small elliptical cam required when a combination push-tube and pull-rod action is used in this modification.

Fig. 7 is a view showing a fragment of a lineal scale mounted on the underside of the table and alongside the tubular table leg D and the tubular leg extension K.

Fig. 8 is a view, partly in section of another modification using a pull-rod hinged as indicated externally to the leg at a point on the bracket eccentric to the centerline of the hinge E' and performing the same function as the pull-rod in Figs. 1 and 2 by entering the leg through a slot below the bracket assembly.

Fig. 9 is a drawing of a tripod leg provided with the leg structure of the present invention, in which modification the cam is eliminated because the pull on the pull-rod is provided when the leg is swung by its hinge from the closed to the open position.

Referring now more particularly and by reference characters to the drawing, A designates a common type of card table corner leg bracket assembly with spring-snap-bracket B which snaps over head of rivet C when leg D is fully opened to standing position. Fig. 1 shows the folded position. Mounted near the upper end of the leg bracket assembly is a bolt or rivet E used both for the hinge pin for the leg and also as a shaft for an eccentric cam "F" which is a 3/8" steel cylinder with a 3/16" hole bored longitudinally and eccentrically to provide about 3/32" pull on the P shaped rod "P" when leg D is swung 90 degrees from folded position to standing position. The cam "F" is secured to bolt E with a set screw 2 or a spot weld and the head of bolt E is welded to the bracket A or kept from turning by a carriage bolt type of square shoulder pressed into a square hole in the bracket so that a pull action is caused by the turning of the P rod with the leg forcing the loop of the pull rod to turn on the fixed cam F so that when the leg is turned 90 degrees to the standing position the upper "P" loop rests on the high side of the cam F. A washer G having an outside diameter of 7/8", which is the same outside diameter as the end of the tube on which it rests, is provided at its center with a hole 3/16" or more in diameter through which the pull rod "P" slides. Adjacent the washer G is positioned a cylinder H of neoprene or other special rubber compound, laboratory developed for maximum resiliency combined with age and heat resistance and cold resistance and minimum compression set.

This cylinder has an outside diameter of 7/8" with a hole passing through its center with an inside diameter of 3/16" or more through which the pull rod passes.

Threaded to screw on the end of the rod P and against the special compound cylinder H i s a 3/16" thick disk I. On the screw threaded end of the rod P is a wing nut J which serves as a jam nut to prevent the disk I from loosening.

Over the table leg D there slides snugly but smoothly, a tubular leg extension K. On the inner underside edge L of the table and parallel to the folded leg there is affixed a lineal scale in inches or centimeters such as illustrated in Fig. 7 showing frequently needed heights.

On the end of the leg extension K there is fitted a disk shaped foot piece M which is held in position by spring arms N which bear against the inner side of the leg extension. This foot piece may also be attached to the wing nut J and disk I by means of a nylon cord O, the length of the cord being adjusted to permit maximum extension without permitting assembly to come apart when so extended. Figs. 5 and 6 illustrate a modified form of applicant's invention. In this modification there is employed a push tube R and a pull rod P' and the leg extension W is smaller and on the inside as shown in Fig. 5.

In these figures the reference characters A', P', C', G', K', H', I', and J' correspond to the reference characters A, P, C, E, G, K, H, I and J in the preferred form.

As shown in Figs. 5 and 6 the elliptical shaft U com-

bines both a push and pull movement, a push movement against the push tube R and a pulling movement of the pull rod P'.

Fig. 6 shows an elongated hole S in the push tube to permit the push tube to pass the rivet C'.

It will also be observed that the leg extension W is provided with a flange V as shown in Fig. 5. A bushing X' is pressed into the end of leg K' so that when the flange contacts the bushing at maximum extension the assembly is prevented from coming apart. The improved leg structure could also be applied to a tripod as clearly shown in Fig. 9.

The operation of the device is simple. When in folded position the leg extension K is moved over the table leg D the desired distance indicated by the lineal scale mounted alongside the table leg D and the leg extension K. When the table leg D is fully opened to standing position, the spring snap bracket B snaps over the head of rivet C. A pull action is caused by the turning of the P rod with the leg forcing the loop of the pull rod to turn on the fixed cam F so that when the leg is turned 90 degrees to the standing position the upper P loop rests on the high side of the cam F and the rubber cylinder H is compressed firmly against the inside of the leg extension K thus locking the leg extension at the desired length.

Having described only two preferred forms and applications of my invention and only typical manners of carrying out the method of my invention, it is to be appreciated that many details of construction may be changed or modified without departing from the spirit of the present invention and it is, therefore, desired to be limited only by the scope of the appended claims.

I claim:

1. In a corner leg bracket assembly comprising a tubular table leg, a bolt or rivet mounted near the upper end of the table leg, an eccentric cam, said bolt being used both as a hinge pin for the table leg and also as a shaft for the cam, a rivet passing through the table leg below and parallel to the first named rivet, a spring snap bracket which snaps over the head of said rivet when the table leg is fully opened to standing position, a tubular leg extension slidable over the table leg, a washer mounted at the lower end of the table leg, a rubber compound cylinder mounted within the leg extension and adjacent said washer, a threaded disk screwed adjacent the lower end of said rubber cylinder, a hole passing through the center of said washer and rubber cylinder, a P-shaped threaded pull rod swiveled on said eccentric cam and passing through said hole, and a wing nut on the threaded end of said rod whereby when the leg is turned to standing position, the rubber cylinder is compressed firmly against the inside of the leg extension thus locking the leg extension at the desired length.

2. In a corner leg bracket assembly comprising a tubular table leg, a bolt or rivet mounted near the upper end of the table leg, an eccentric cam, said bolt being used both as a hinge pin for the table leg and also as a shaft for the cam, a rivet passing through the table leg below and parallel to the first named rivet, a spring snap bracket which snaps over the head of said rivet, when the table leg is swung to standing position, a tubular leg extension slidable over the table leg, a rubber compound cylinder mounted within the leg extension, a hole passing through the center of said rubber cylinder, a P-shaped threaded pull rod swiveled on said eccentric cam and passing through said hole, a disk and a wing nut on the threaded end of said rod, whereby when the leg is turned to standing position, the rubber cylinder is compressed firmly against the inside of the leg extension thus locking the leg extension at the desired length.

3. In a corner leg bracket assembly comprising a tubular table leg, a bolt or rivet mounted near the upper end of the table leg, an eccentric cam, said bolt being used both as a hinge pin for the table leg and also as a shaft for the cam, a tubular leg extension slidable over the table leg, a rubber compound cylinder mounted within the leg extension, a hole passing through the center of said rubber cylinder, a P-shaped threaded pull rod swiveled on said eccentric cam and passing through said hole, a disk and a wing nut on the threaded end of said rod, whereby when the leg is turned to standing position, the rubber cylinder is compressed firmly against the inside of the leg extension thus locking the leg extension at the desired length.

4. In a bracket assembly comprising a tubular table leg, a tubular leg extension slidable over the table leg, a bolt or rivet mounted near the upper end of the table leg, a rubber compound cylinder mounted within the leg extension, an eccentric cam, said bolt being used as a hinge pin for the table leg and also as a shaft for the cam, a P-shaped threaded pull rod, a disk and a wing nut on the threaded end of said rod whereby when the leg is turned to standing position, the rubber cylinder is compressed firmly against the inside of the leg extension, thus locking the leg extension at the desired length, a disk shaped foot piece fitted on the leg extension, a cord of adjustable length attached to the foot piece and to the wing nut and disk to permit maximum extension without permitting assembly to come apart when so extended.

References Cited in the file of this patent

UNITED STATES PATENTS

2,009,590	Potigian	July 30, 1935
2,010,041	Slee	Aug. 6, 1935
2,323,423	Schmidt et al.	July 6, 1943
2,744,712	Brandt	May 8, 1956