July 4, 1967 R. S. GITTINGS 3,329,104

FOLDING TABLE OF ADJUSTABLE HEIGHT

Filed April 8, 1966 2 Sheets-Sheet 1

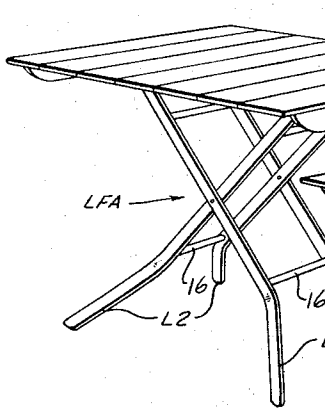


Fig. 1.

Fig. 2.

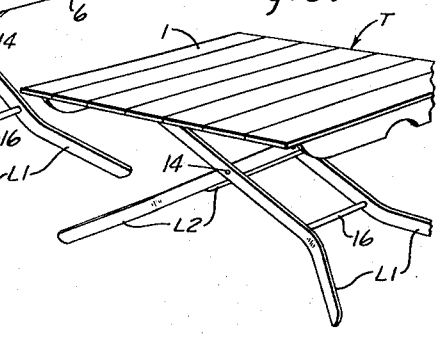


Fig. 3.

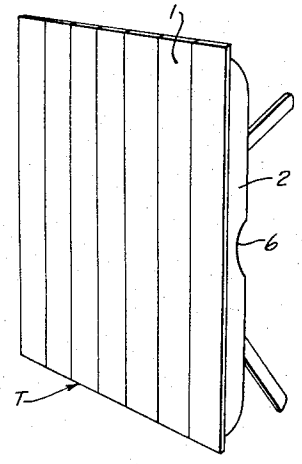


Fig. 4.

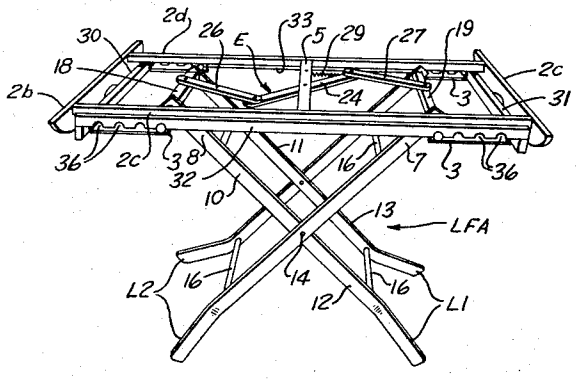


Fig. 5.

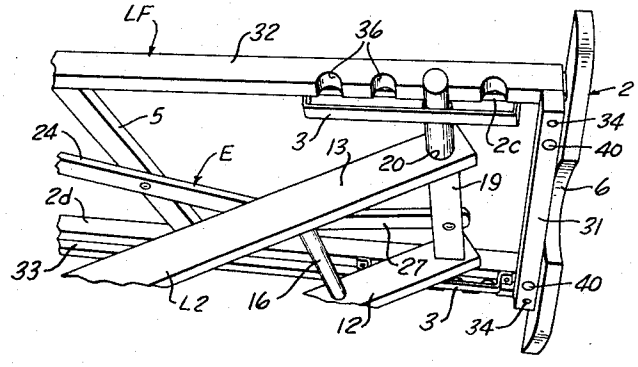


Fig. 6.

INVENTOR:
ROBERT S. GITTINGS

BY:

James E. Nilles

ATTORNEY

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FOLDING TABLE OF ADJUSTABLE HEIGHT

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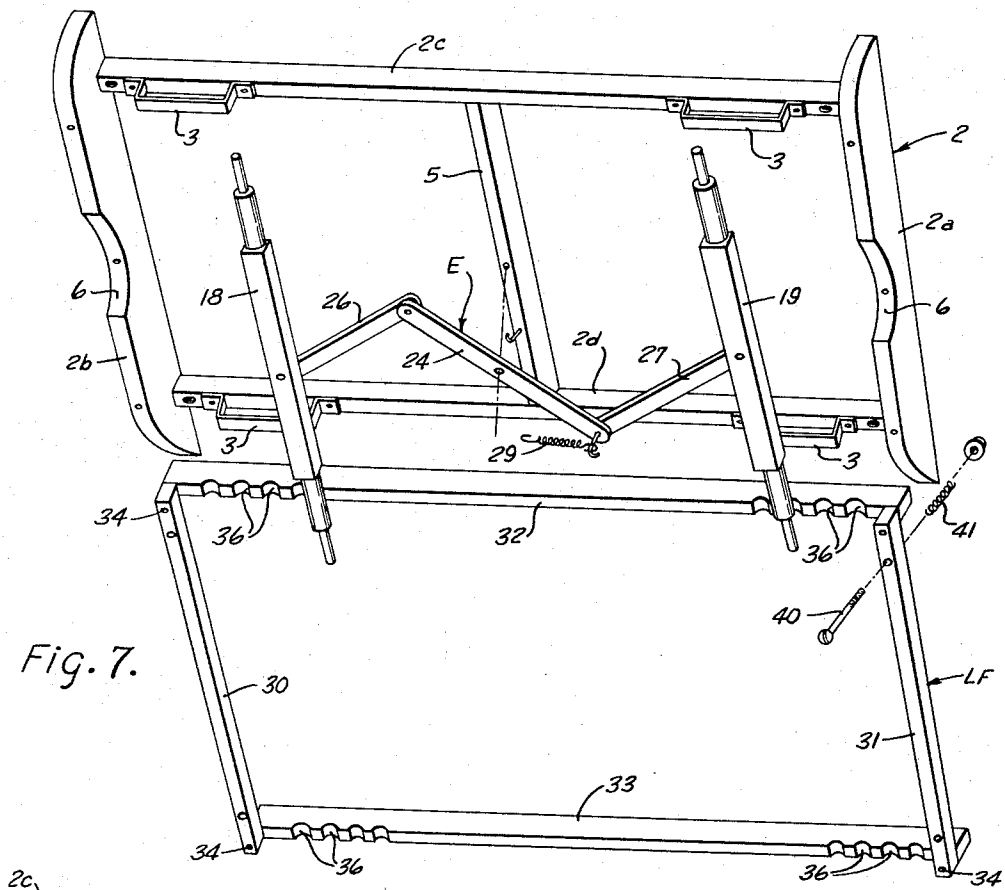


Fig. 7.

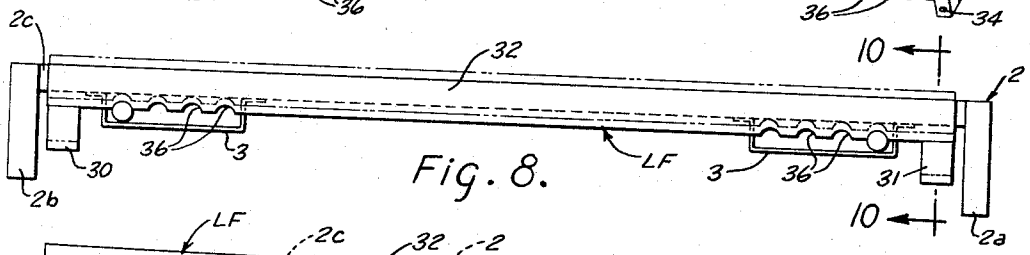


Fig. 8.

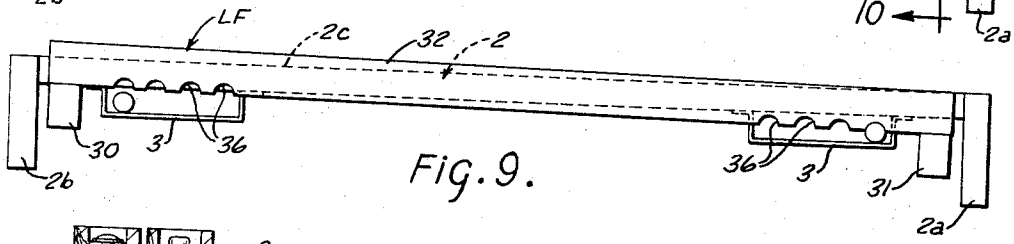


Fig. 9.

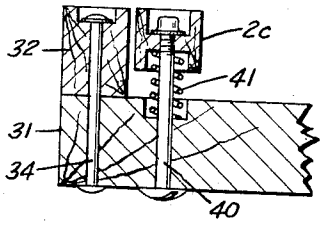


Fig. 10.

INVENTOR:
ROBERT S. GITTINGS
BY:
James E. Nilles
ATTORNEY

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FOLDING TABLE OF ADJUSTABLE HEIGHT

Robert S. Gittings, Bakersfield, Calif., assignor to Gold Medal Folding Furniture Co., Racine, Wis., a corporation of Wisconsin

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4 Claims. (Cl. 108—117)

This invention relates generally to furniture and more particularly, to tables of the type having crossed legs and of adjustable height.

The prior art devices have various means for effecting adjustment of the height of the table, but they have shortcomings, such as for example, difficulty and inconvenience to operating the adjusting mechanism, non-positive locking or subject to inadvertent release of the locking mechanism, complicated mechanism and high cost of manufacture.

The present invention provides an improved folding table which is readily and easily adjustable as to height, positive and foolproof in operation and cannot be accidentally released, and operates smoothly and without malfunction.

More specifically, the present invention provides a folding table of the above type which has a separate, auxiliary, locking frame extending beneath the table top and which must be grasped and released simultaneously at opposite ends in order to effect a change in table height. A more limited aspect of the invention contemplates means for insuring equal and simultaneous movement of the crossed legs to thereby insure positive locking, a level table and smooth operation of adjustment.

These and other objects and advantages of the present invention will appear hereinafter as this disclosure progresses, reference being had to the accompanying drawings, in which:

FIGURE 1 is a perspective view of a table made in accordance with the present invention, the table being set at its highest or dining height;

FIGURES 2 and 3 are views similar to FIGURE 1 but showing the table at its casual and coffee table height, respectively;

FIGURE 4 is a perspective view of the table in the fully folded or storage position;

FIGURE 5 is a perspective view of the table, the view being taken from a position slightly above and from the side of the table, but with the top removed for clarity in the drawing;

FIGURE 6 is an enlarged, fragmentary, perspective view of a portion of the locking mechanism, the view being taken generally from beneath the top of the table, the top itself being removed for clarity;

FIGURE 7 is an exploded, perspective view of the table parts, enlarged;

FIGURE 8 is a side elevational view of a portion of the table and showing the locking frame in broken lines when it has been shifted upwardly to a release position;

FIGURE 9 is a view similar to FIGURE 8 but showing only one end of the frame being shifted to the release position, and showing the other end locked and still holding the table in position; and

FIGURE 10 is a cross sectional view taken along line 10—10 in FIGURE 8.

TABLE TOP

Referring in greater detail to the drawings, the table top T includes an upper flat member **1** which provides a table top surface and a frame member **2** which is rigidly secured to the member **1** by screws. The frame member **2** includes two end pieces **2***a* and **2***b* which are rigidly secured to elongated sides **2***c* and **2***d* so as to form a generally rectangular frame. It should be mentioned, however,

that the shape of the top is immaterial, and circular, square or other forms of shapes could be used. The top also includes metal, generally U-shaped brackets **3**, one being rigidly secured to the underside of each end of the side **2***c* and **2***d* for a purpose that will appear. The top also includes a central cross brace **5**. It will be noticed that the end members **2***a* and **2***b* have central recesses **6** adjacent the lower surface for a purpose that will hereinafter appear.

LEG FRAME ASSEMBLY

The table also includes a cross legged, folding leg frame assembly LFA having two spaced apart upper ends **7** and **8** which are slidably mounted on the underside of the table top. For adjusting the table to the desired height, these upper ends can slide in opposite directions, toward or away from one another. More specifically the leg frame assembly includes a pair of legs **10** and **11** forming in effect a single wide leg L1, and a second pair of legs **12** and **13** forming in effect a single wide leg L2, which legs L1 and L2 are pivotally connected together intermediate their length, as at **14**. The two pairs of legs thus form a scissors mechanism. The lower ends of the individual legs **10–13** flare outwardly so as to provide good stability in all directions. Braces **16** are rigidly secured between the legs of the pairs for rigidity. The leg frame assembly includes a cross member **18** at one of its upper ends and cross member **19** at the other upper end, the members **18** and **19** being rotatably mounted in the aligned holes **20** in each of the upper ends (FIG. 6). The outer end portions of these cross members **18** and **19** are round in cross section and the ends of the cross members are slidable and held captive in the lower surface of the table top, more specifically in the brackets **3** of the table top. These cross members can rotate in the upper ends of the legs for a purpose that will appear later.

When the upper ends of the legs are moved toward one another, the table assumes its dining height, as shown in FIGURE 1. When the legs are moved away from one another, they can assume a lower position, as will appear, as shown in FIGURES 2 or 3. In addition the table can be completely folded into a compact, storage position as shown in FIGURE 4.

EQUALIZER

In order to insure that the upper ends of the pairs of legs move evenly and simultaneously, either toward or away from one another, an equalizer E is provided therebetween. This equalizer comprises three links, a central link **24**, which is pivoted intermediate its length to the cross brace of the table top, and links **26** and **27** which are connected at one of their ends to the opposite ends, respectively, of the link **24**. The other ends of links **26** and **27** are then pivotally connected to the cross members **18** and **19** of the leg assembly. These three links thereby insure equal movement of the upper ends of the leg assembly, either toward or away from one another.

It will be noted a spring **29** is attached between the equalizer E and the table top T which urges the leg assembly toward the extended or "full height" position. In other words, the spring urges the upper ends of the leg assembly toward one another and insures that the assembly opens freely when the locking mechanism which is about to be described, is released.

The cross members **18** and **19** are in effect rotatable in holes **20** in the legs **10–13**, more particularly, the legs **10–13** can rotate on their respective cross members **18** and **19**. Also the equalizer E can be pivoted directly on these cross members because the latter can remain rotationally stationary.

LOCKING FRAME

A locking frame LF, which is shown as being generally

rectangular in shape, is comprised of two end pieces **30** and **31** and two elongated side pieces **32** and **33** which are rigidly secured to the end pieces **30** and **31** by any suitable means such as rivets **34**. End pieces **30** and **31** lie in general parallelism with the adjacent end pieces **2***a*, **2***b* of the top T. The side pieces **32** and **33** of the locking frame each having a series of downwardly facing notches **36** at each of their ends which constitute engaging means for lockingly engaging the upper ends of the leg frame assembly, more specifically, the outer portions of the cross members **18** and **19**. The locking frame LF is shiftably mounted to the underside of the table top T by means of pins **40** (FIGURE 10) which extend through the end members of the locking frame and the sides **2***c* and **2***d* of the table top, as shown clearly in FIGURE 10. A spring **41** surrounds each of the pins **40** and are located between the locking frame LF and the table top T so as to urge the locking frame downwardly in respect to the table top to a position where the notches **36** of the locking frame firmly engage the upper ends of the leg frame assembly, namely cross members **18** and **19**.

In the normal position the springs **41** hold the locking frame downwardly in locking position where it engages and locks the leg frame assembly. This normal position is shown by the full lines in FIGURE 8. The broken lines illustrates the locking frame when raised to the unlocked position.

The locking frame can then be shifted to another position relative to the table top by raising it to an upper position in which the notches of the locking frame are raised free of the round ends of the cross members **18** and **19** of the folding leg frame assembly. This is easily accomplished by a person grasping both of the locking frame end pieces **30** and **31** adjacent the recesses **6** in the top T at the opposite ends of the table, and then raising the locking frame upwardly, against the bias of the springs **41**. This raises the notches **36** above and free of the upper ends of the leg frame assembly, thus permitting these upper ends to slide in opposite directions, either toward or away from one another.

OPERATION

In operation, when it is desired to place the table in the dining position shown in FIGURE 1, the locking frame is grasped at either end and urged upwardly thus freeing the notches from the upper end of the leg assembly. The structure is then lifted to the desired height, the spring **29** assisting gravity in causing the scissoring leg assembly to lower. The locking frame is then freed, and it snaps downwardly due to springs **41**, permitting the outermost or end notches **36** to engage the upper ends of the leg frame assembly, thereby locking the table in position. The locking frame is unlocked by grasping both ends and raising the locking frame upwardly, moving the table to the desired height, and then freeing the locking frame, permitting its notches to engage the upper ends of the leg assembly.

FIGURE 9 shows a situation where only one end of the locking frame has been released and the notches at that end are free of the adjacent upper end of the leg assembly. It will be noted under these circumstances that the opposite end of the locking frame still engages and locks the other upper end of the leg assembly. Thus, even though one end of the locking frame may be accidentally raised, for example by the knee of a person seated at the table, the other end of the locking frame, through the equalizer E nevertheless prevents the table from collapsing.

In summary, the cross legged, folding table provided by the present invention can be easily adjusted as to height but at the same time is positive in locking and foolproof in operation. It cannot be accidentally released because both ends of the locking frame must be grasped and raised simultaneously in order to permit adjustment. The equalizer mechanism provides equal and simultaneous movement of the cross legged to insure positive locking, a level table, quick opening and smooth operation.

Various modes of carrying out the invention are contemplated as being within the scope of the following claims particularly pointing out and distinctly claiming the subject matter which is regarded as the invention:

I claim:

1. A cross-legged, folding table of the adjustable height type comprising: a table top including elongated brackets at opposite ends of said top; a cross-legged folding leg frame assembly having two spaced apart upper ends slidably mounted on the underside of said table top for sliding in opposite directions toward and away from one another, said leg frame assembly including crossed legs pivoted together intermediate their length to form a scissors mechanism, said upper ends each including a cross member on which said legs are mounted, said cross members being slidable and held captive in said brackets; a locking frame extending beneath said top and mounted thereon for shifting relative to said top between leg frame assembly locking and releasing positions; and engaging means adjacent each end of said locking frame for lockingly engaging both said upper ends of said leg frame assembly when said locking frame is in said locking position and for releasing said upper ends when said locking frame is shifted to said releasing position.

2. A table as defined in claim **1** further characterized in that said engaging means includes downwardly facing notches at opposite ends of said locking frame, said notches being selectively engageable with said cross members.

3. A table as defined in claim **2** including an equalizer between said legs to cause equal movement of said upper ends.

4. A cross-legged, folding table of the adjustable height type comprising: a table top; a cross-legged folding leg frame assembly having two spaced apart upper ends slidably mounted on the underside of said table top for sliding in opposite directions toward and away from one another, said leg frame assembly including crossed legs pivoted together intermediate their length to form a scissors mechanism, said upper ends each including a cross member on which said legs are mounted, said cross members being slidable and held captive in said brackets; an equalizer between said legs to cause equal movement of said upper ends, a locking frame extending beneath said top and mounted thereon for shifting relative to said top between leg frame assembly locking and releasing positions; and engaging means adjacent each end of said locking frame for lockingly engaging both said upper ends of said leg frame assembly when said locking frame is in said locking poistion and for releasing said upper ends when said locking frame is shifted to said releasing position.

References Cited

UNITED STATES PATENTS

631,556	8/1899	Bushnell	108—117
834,428	10/1906	Whonn	108—87
1,710,382	4/1929	Rackstraw	108—87
1,881,047	10/1932	Doman	108—117
2,788,252	4/1957	Davis	108—117
2,829,936	4/1958	Anderson	108—117
3,152,833	10/1964	Crereling et al.	297—140
3,174,443	3/1965	Egger	108—117

DAVID J. WILLIAMOWSKY, *Primary Examiner.*

FRANK B. SHERRY, *Examiner.*

G. O. FINCH, *Assistant Examiner.*