United States Patent [19]

Chiariello

[11] **3,786,766**

[45] **Jan. 22, 1974**

[54] **COLLAPSIBLE TABLE**

[76] Inventor: **Ned Chiariello,** 454 Tower Lawn Dr., Burlington, Wis.

[22] Filed: **Sept. 15, 1972**

[21] Appl. No.: **289,725**

[52] **U.S. Cl.** **108/115,** 248/167, 248/171

[51] **Int. Cl.** **A47b 3/00**

[58] **Field of Search** 108/115, 128; 297/46; 248/167, 248/171

[56] **References Cited**

UNITED STATES PATENTS

192,252	6/1877	Gates	108/115
598,077	2/1898	Comee	108/115
2,217,031	10/1940	Sutton	108/115

Primary Examiner—Bernard A. Gelak
Assistant Examiner—D. F. Marquette
Attorney, Agent, or Firm—Wallenstein, Spangenberg, Hattis & Strampel

[57] **ABSTRACT**

A collapsible table comprising a pivotable tabletop mounted at the upper end of a standard to which one, or more, movable legs are secured. Leg actuating means, having a twisted, flat-surfaced, movable leg-engaging portion, connects the pivotable tabletop with means on said one, or more, movable legs which co-acts or cooperates with the flat surfaces of the leg-engaging portion to move the movable leg, or legs, from a collapsed position to an extended position when the pivotable tabletop is pivoted from a position of non-use to a position of use. The table may be used as a stand for a movie or slide projector, as a game table, as a snack table, or the like.

10 Claims, 8 Drawing Figures

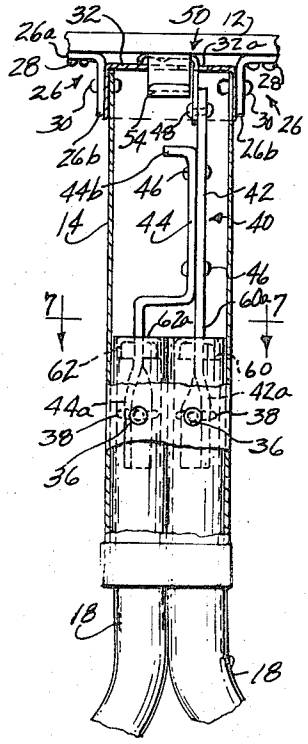


FIG. 1

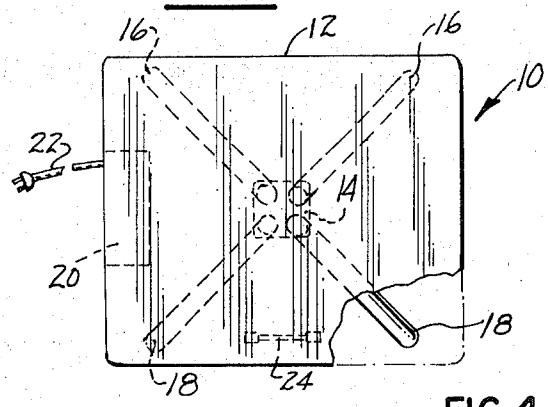


FIG. 2

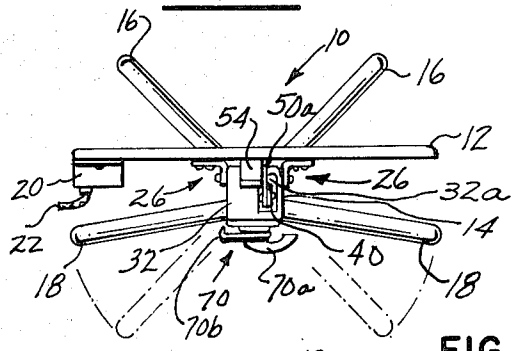


FIG. 3

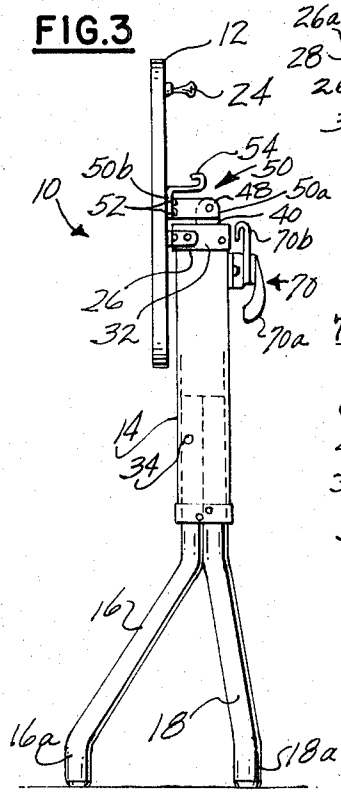


FIG. 4

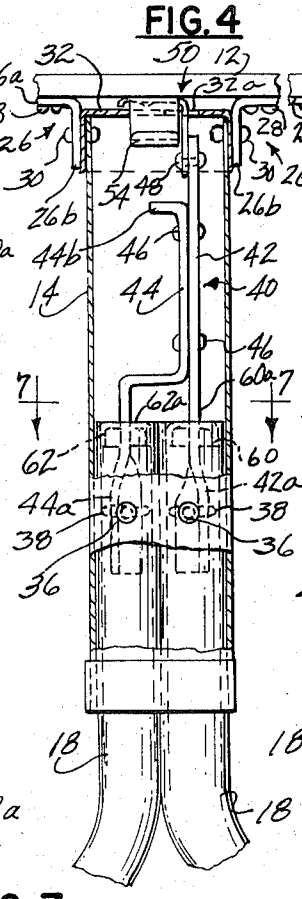


FIG. 5

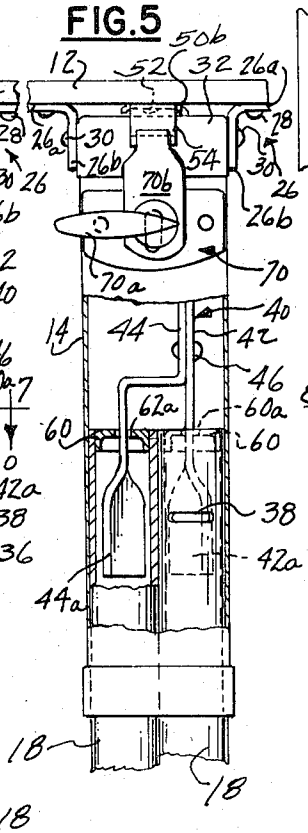


FIG. 6

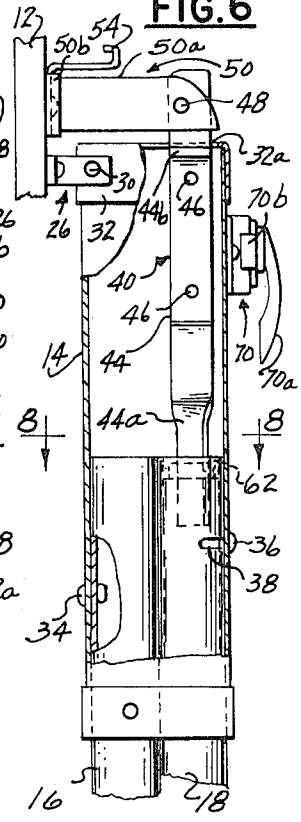


FIG. 7

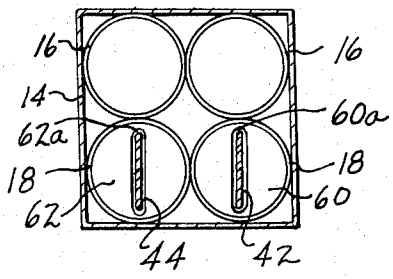
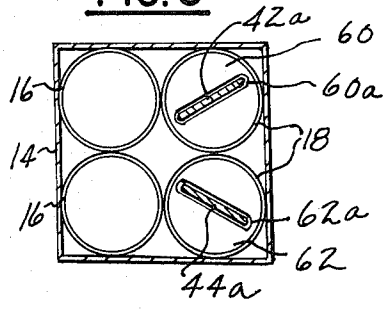


FIG. 8



COLLAPSIBLE TABLE

This invention relates to a collapsible table of the type having a pivotal tabletop and one, or more, movable legs.

Tables of the type wherein the tabletop and one, or more, legs of the table can be moved to a collapsed position for easy storage and/or shipment are known. Exemplary of such tables are those shown in U.S. Pat. Nos. 192,252 and 598,077. While tables such as those disclosed in the aforementioned patents are capable of being collapsed, they have certain disadvantages, chief among which are the necessity for sequentially and separately moving the tabletop and the legs to an extended position when it is desired to use the table, as in the case of the table shown in U.S. Pat. No. 192,252, and, the necessity, as in the case of the tables of both of said patents, for utilizing a number of moving parts to bring about the collapse and the extension of the movable elements of the tables, a factor which has important economic disadvantages in the manufacture of such tables.

In accordance with the present invention, a collapsible table is provided which is capable of either being changed automatically from a collapsed condition to a position of use, or form a position of use to a collapsed condition by simply pivoting, or rotating, one element of the table. This result is achieved, moreover, by means of a uniquely simple mechanism which employs a minimum number of moving parts, and which is foolproof in its operation. The table, while being of lightweight, compact construction, is capable of supporting heavy objects, and is of a size such that it can be put to a wide variety of uses.

The table of this invention, in brief, comprises a substantially vertical tabletop support member, or standard, having a tabletop pivotally mounted at the upper end thereof. The table has a plurality of legs, the upper ends of which are secured on the support member, or standard. While the table can function satisfactorily with three legs, any one, or two, of which can be moved from a collapsed position to an extended position, in the preferred embodiment of the invention, the table is provided with four legs, two of which are movable from either a collapsed position to an extended position, or from an extended position to a collapsed position by pivotal movement of the tabletop. Movement of the legs of the table is achieved by means of a leg actuating member, the upper end of which is pivotally mounted with relation to the tabletop. The leg actuating member, in the preferred embodiment of the invention, has a pair of spaced, movable leg-engaging portions having flattened, or planar, surface areas. The removable leg-engaging portions are each twisted, or turned, along their longitudinal axis whereby the flattened, or planar, surface areas thereof lie in one vertical plane when the movable legs of the table are in a collapsed position and in a different vertical plane when the movable legs are in an extended position. The flattened, or planar, surface areas of the movable leg-engaging portions coact or cooperate with means provided on the movable legs of the table to cause the movable legs to be moved to a collapsed, or to an extended, position when the tabletop is pivoted or rotated. The table advantageously has retaining means for maintaining the pivotal tabletop in a horizontal position when the table is in use. In one form of the table,

electrical connection means, including an electric cord, a switch, lights and receptacles, desirably is provided on the tabletop as a convenient accessory when the table is used for supporting a movie or slide projector, for example.

The invention will be more clearly understood, and additional objects, features and advantages thereof will become apparent from the following detailed description of an embodiment of the invention illustrated in the accompanying drawing wherein:

FIG. 1 is a top plan view of an embodiment of the table of the present invention showing the table in a position of use;

FIG. 2 is a top plan view of said embodiment of the table showing the table in a collapsed position;

FIG. 3 is a side view in elevation of said embodiment of the table showing the table in a collapsed position;

FIG. 4 is an enlarged fragmentary, partial vertical sectional front view showing the relationship of the leg actuating means with respect to the movable legs of said embodiment of the table when the table is in a position of use;

FIG. 5 is a view corresponding to the view of FIG. 4 with added portions of the table shown in partial vertical section, and, in addition, showing one form of retaining means for maintaining the tabletop in a horizontal position when the table is in use;

FIG. 6 is an enlarged fragmentary, partial vertical sectional side view showing the position of the leg actuating means with relation to the movable legs of said embodiment of the table when the tabletop has been pivoted to a position of non-use;

FIG. 7 is a horizontal sectional view taken substantially along line 7—7 of FIG. 4; and

FIG. 8 is a horizontal sectional view taken substantially along line 8—8 of FIG. 6.

Referring, now, in greater detail to the drawing, the embodiment of the table shown and designated generally by reference numeral **10**, comprises a pivotal tabletop **12**, a vertical support member, or standard, **14** and four tubular steel legs, two of which, namely, legs **16—16** are fixed or stationary, and two of which, namely, legs **18—18** are movable.

The tabletop **12** may be any desired shape and size, and may be fabricated of wood, plastic, composition board, metal, or the like. As shown, an electrical connection box **20** is secured to the undersurface of the tabletop **12.** The box **20** has an electric cord **22,** and incorporates a switch, receptacles and lamps (not shown). One, or more, cut-outs or windows (not shown) may be provided in the tabletop **12,** over the box **20,** to enable light from the lamps to be used to view slides, for example, thus serving as a convenient and effective means for a user of the table to select and/or orient slides being shown with a slide projector supported on the tabletop **12.** The tabletop **12** also may be provided with a handle **24** to facilitate carrying the table when it is in a collapsed condition.

As shown, the tabletop **12** is pivotally mounted at the upper end of the support member **14** by means of a pair of brackets **26—26,** the legs **26*a*—26*a*** of which are secured to the undersurface of the tabletop **12** by screws **28—28,** and the legs **26*b*—26*b*** of which are pivotally secured as by rivets **30—30** to the opposed sidewalls of the support member **14** through a cap **32** mounted on the upper end of the support member **14.** The support

member 14 is open at its lower end to receive the upper ends of the fixed or stationary legs 16—16 and the movable legs 18—18. The upper ends of the fixed, or stationary, legs 16—16 are held in position within the support member 14 by means of screws 34—34, while the upper ends of the movable legs 18—18 are maintained in position within the support member 14 by means of rivets 36—36, the inner ends of which ride in narrow, transverse slots 38—38 formed in the upper ends of the movable legs 18—18. The legs 16—16 and 18—18 may be any shape desired. In the embodiment of the invention illustrated, the legs, at their point of emergence from the lower end of the support member 14, extend outwardly and downwardly, and terminate in relatively short, vertical pedestal portions 16*a*—16*a* and 18*a*—18*a*. Casters or wheels (not shown) can be provided on the portions 16*a*—16*a* and 18*a*—18*a*, if desired, to impart added mobility to the table. While the use of four legs, two of which are stationary and two of which are movable, provides optimum stability for the table, as indicated hereinabove, three legs, one, preferably two, of which are movable, may be used.

Movement of the legs 18—18 of the table 10 is achieved by means of a unique leg actuating member 40. As illustrated, the member 40 comprises two leg-engaging elements 42 and 44 joined along their length as by spaced rivets 46—46. The upper end of the element 42 of the leg actuating member 40 is pivotally connected, as by a rivet 48, to a pivotal leg portion 50*a* of a tabletop engaging bracket 50. The leg portion 50*a* of the bracket 50 is joined to an anchoring plate portion 50*b* which is secured to the undersurface of the tabletop 12 by screws 52—52. Joined to a margin of the plate portion 50*b* is a keeper 54, the function of which will become clear as the description proceeds. As best shown in FIGS. 4 and 6 of the drawing, the pivotal leg portion 50*a* of the bracket 50, and the upper end of the element 42 of the leg actuating member 40 are adapted to move in a substantially vertical path through a slot 32*a*, formed in the cap 32 secured on the upper end of the support member 14, when the tabletop 12 is moved from a vertical position of non-use as shown in FIG. 6 to a horizontal position of use as shown in FIG. 4, for example.

The element 42 of the leg actuating member 40, as illustrated, is substantially straight, and is provided at its lower end with a flat-surfaced, leg rotating portion 42*a* which extends through a transverse slot 60*a* formed in a cap member 60 secured in the upper end of one of the movable legs 18. The element 44 of the leg actuating member 40, as illustrated, is bent outwardly from the element 42, and then downwardly and is provided with a flat-surfaced, leg rotating portion 44*a* which extends through a transverse slot 62*a* in a cap member 62 secured in the upper end of the other movable leg 18. The upper end of the element 44 is provided with a lateral extension 44*b* the function of which will be mentioned as the description proceeds.

The leg rotating portions 42*a* and 44*a* are formed by twisting or turning the lower ends of the elements 42 and 44 in opposite directions along the longitudinal axis of the elements 42 and 44 to provide substantially planar, flat surfaces which lie in converging intersecting vertical planes, which planes define an angle with relation to one another when the legs 18—18 are in a collapsed condition which is different from the angle defined thereby when the legs 18—18 are in an extended condition. The flat surfaces of the portions 42*a* and 44*a* coact, or cooperate, with the side margins or edges of the transverse slots 60*a* and 62*a*, respectively, in the cap members 60 and 62 to enable the movable legs 18—18 to be smoothly, positively and automatically moved from a collapsed condition to an extended condition, or from an extended condition to a collapsed condition, by simple pivotal movement of the tabletop 12. More specifically in this latter connection, when the tabletop 12 is pivoted from a vertical position of non-use as shown in FIG. 3, the leg actuating member 40 is simultaneously moved downwardly as a result of the pivotal movement of the leg 50*a* of the bracket 50 about its pivot point as defined by rivet 48. The downward movement of the member 40 acts to bring the flat surfaces of the portions 42*a* and 44*a* into engagement with the side margins or edges of the transverse slots 60*a* and 62*a* in the cap members 60 and 62 causing the movable legs 18—18 to swing outwardly until the tabletop is in a horizontal position of use as shown in FIG. 1, for example. As best illustrated in FIGS. 4, 5 and 7, the portions 42*a* and 44*a* lie below the slots 60*a* and 62*a* when the legs 18—18 are in a fully extended position, and the slots 60*a* and 62*a* re substantially parallel to one another. When it is desired to collapse the table 10, the tabletop 12 is pivoted upwardly, causing the member 40 to move upwardly in the support member 14. The upward movement of the member 40 brings the flat surface areas of the portions 42*a* and 44*a* into contact with the side margins or edges of the slots 60*a* and 62*a*. The coaction between the surface areas of the portions 42*a* and 44*a* and the side margins or edges of the slots 60*a* and 62*a* as the member 40 moves in an upward direction results in the rotation of the movable legs 18—18 to a collapsed condition as best seen in FIGS. 2 and 3. The transverse slots 38—38, and their associated rivets 36—36, enable the legs 18—18 to freely rotate from one position to another while the upper ends of the legs 18—18 are maintained in a stable vertical position within the support member 14. The upper end of the element 44 of the leg actuating member 40 desirably is provided with a lateral extension 44*b* which acts to prevent the portions 42*a* and 44*a* from being disengaged from the transverse slots 60*a* and 62*a*, respectively, in the cap members 60 and 62 when the tabletop 12 is, for some reason, removed from the support member 14.

A latch 70, having a handle 70*a* and a keeper engaging portion 70*b* advantageously is mounted on the upper end of the support member 14 to maintain the tabletop 12 in a horizontal plane when the table is in a position of use. The latch 70 and keeper 54 arrangement, of course, is only representative of various locking means for maintaining the tabletop in a fixed position when the table is in use.

As stated, the table 10 can have multiple uses. To this end, a chess-checker board, for example, may be provided on the upper surface of the tabletop 12. Its use as a support for a movie or slide projector has already been mentioned, as has its use as a snack table. The installation of casters or wheels on the legs could facilitate its use as a serving table.

While for purposes of illustration a preferred embodiment of this invention has been shown and described, other forms thereof will become apparent to those skilled in the art upon reference to this disclosure and, therefore, it should be understood that any such

departures from the specific embodiment shown and described are intended to fall within the spirit and scope of this invention.

What is claimed is:

1. A collapsible table comprising a substantially vertical, tabletop support member, a tabletop pivotally mounted at the upper end of the support member, a plurality of legs, the upper ends of which are secured on the support member, at least one of the legs being movable from a collapsed position to an extended position or from an extended position to a collapsed position when the tabletop in the first instance is pivoted from a position of non-use to a position of use or, in the second instance, is pivoted from a position of use to a position of non-use, and leg actuating means joined at its upper end to the pivotable tabletop, said leg actuating means having a movable leg-engaging portion provided with flat surface areas which are adapted to engage cooperating leg moving means at the upper end of said at least one movable leg, the flat surface areas of the leg-engaging portion coacting with said leg moving means to move the said at least one movable leg from either a collapsed position to an extended position or from an extended position to a collapsed position when the tabletop in the first instance is pivoted from a position of non-use to a position of use or, in the second instance, is pivoted from a position of use to a position of non-use, said leg-engaging portion being twisted whereby the flat surface areas engaging said leg moving means lie in one vertical plane when the movable leg is in a collapsed position and in a different vertical plane when the movable leg is in an extended position.

2. A table according to claim 1 wherein four legs are provided for the table, two of which are stationary and two of which are movable in response to pivotal movement of the tabletop.

3. A table according to claim 1 wherein the leg moving means at the upper end of said at least one movable leg comprises an opening, the side margins of which coact with the flat surface areas of the movable leg-engaging portion of the leg actuating means to move the said at least one movable leg from a collapsed position to an extended position or from an extended position to a collapsed position in response to pivotal movement of the tabletop.

4. A table according to claim 1 wherein the movable leg-engaging portion of the leg actuating means is an elongated bar of substantially rectangular cross-section which has been twisted along its longitudinal axis to provide a pair of flat surface areas which lie in vertical planes which are at an angle to the vertical planes normal to the longitudinal axis of the bar.

5. A table according to claim 3 wherein the leg moving means at the upper end of said at least one movable leg comprises a cap member fixedly supported at the upper end of said at least one movable leg, said cap member having a slot formed therethrough for receiving the movable leg-engaging portion of the leg actuating means.

6. A table according to claim 1 wherein the said at least one movable leg is provided with an opening for receiving leg retaining means on the tabletop support member whereby the movable leg can be freely moved from a collapsed to an extended position, or vice versa, while being maintained in position on the support member.

7. A collapsible table comprising a substantially vertical, tabletop support member, a tabletop pivotally mounted at the upper end of the support member, a plurality of legs, the upper ends of which are secured on the support member, two of the legs being movable from a collapsed position to an extended position or from an extended position to a collapsed position when the tabletop in the first instance is pivoted from a position of non-use to a position of use or, in the second instance, is pivoted from a position of use to a position of non-use, leg actuating means joined at its upper end to the pivotable tabletop, said leg actuating means having spaced, movable leg-engaging portions provided with flat surface areas which are adapted to engage cooperating leg moving means at the upper end of each movable leg, the flat surface areas of the leg-engaging portions coacting with said leg moving means to move the movable legs from either a collapsed position to an extended position or from an extended position to a collapsed position when the tabletop in the first instance is pivoted from a position of non-use to a position of use or, in the second instance, is pivoted from a position of use to a position of non-use, each of said leg-engaging portions being twisted whereby the flat surface areas engaging said leg moving means lie in one vertical plane when the movable legs are in a collapsed position and in a different vertical plane when the movable legs are in an extended position, and releasable tabletop retaining means for maintaining the pivotal tabletop in a horizontal position when the collapsible table is in use.

8. A table according to claim 7 wherein the leg actuating means comprises a bifurcated member having spaced, movable leg-engaging portions, said member being pivotally joined at one end to the tabletop.

9. A table according to claim 7 wherein the leg-engaging portions of the leg actuating means are twisted in opposite directions whereby the flat surface areas thereof lie in intersecting vertical planes.

10. A table according to claim 7 wherein the movable legs are each provided with an opening for receiving leg retaining means on the tabletop support member whereby the movable legs can be freely moved from a collapsed to an extended position, or vice versa, while being maintained in position on the support member.

* * * * *