

[54] **FOLDABLE ARTICLE OF FURNITURE**

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[21] Appl. No.: **151,214**

[52] U.S. Cl. ....**297/159, 108/120, 248/432**

[51] Int. Cl. ....**A47b 39/00**

[58] Field of Search .....**297/157, 159; 108/119, 118, 108/120, 90; 248/432, 164, 431**

[56] **References Cited**

**UNITED STATES PATENTS**

2,197,302 4/1940 Goering.....248/164

*Primary Examiner*—Bobby R. Gay

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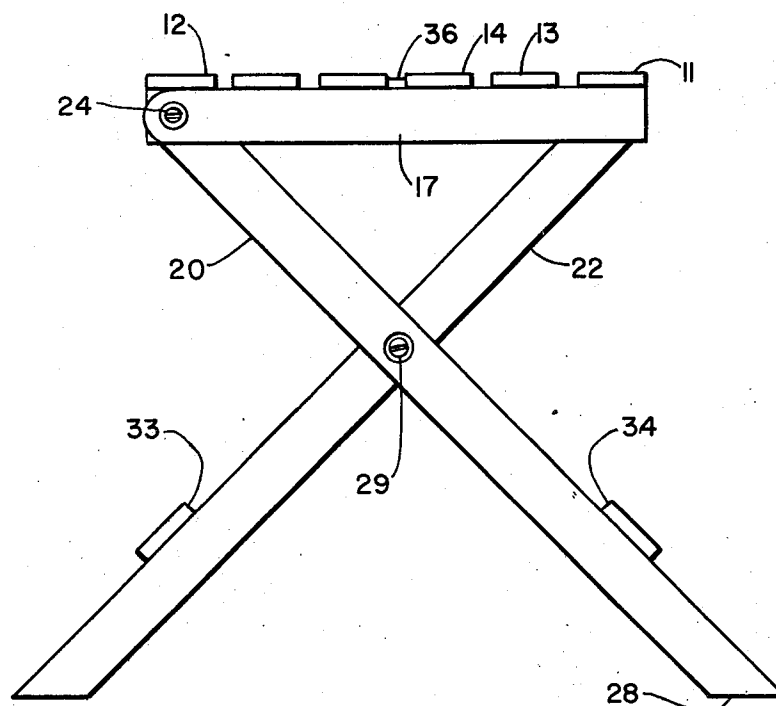
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[57] **ABSTRACT**

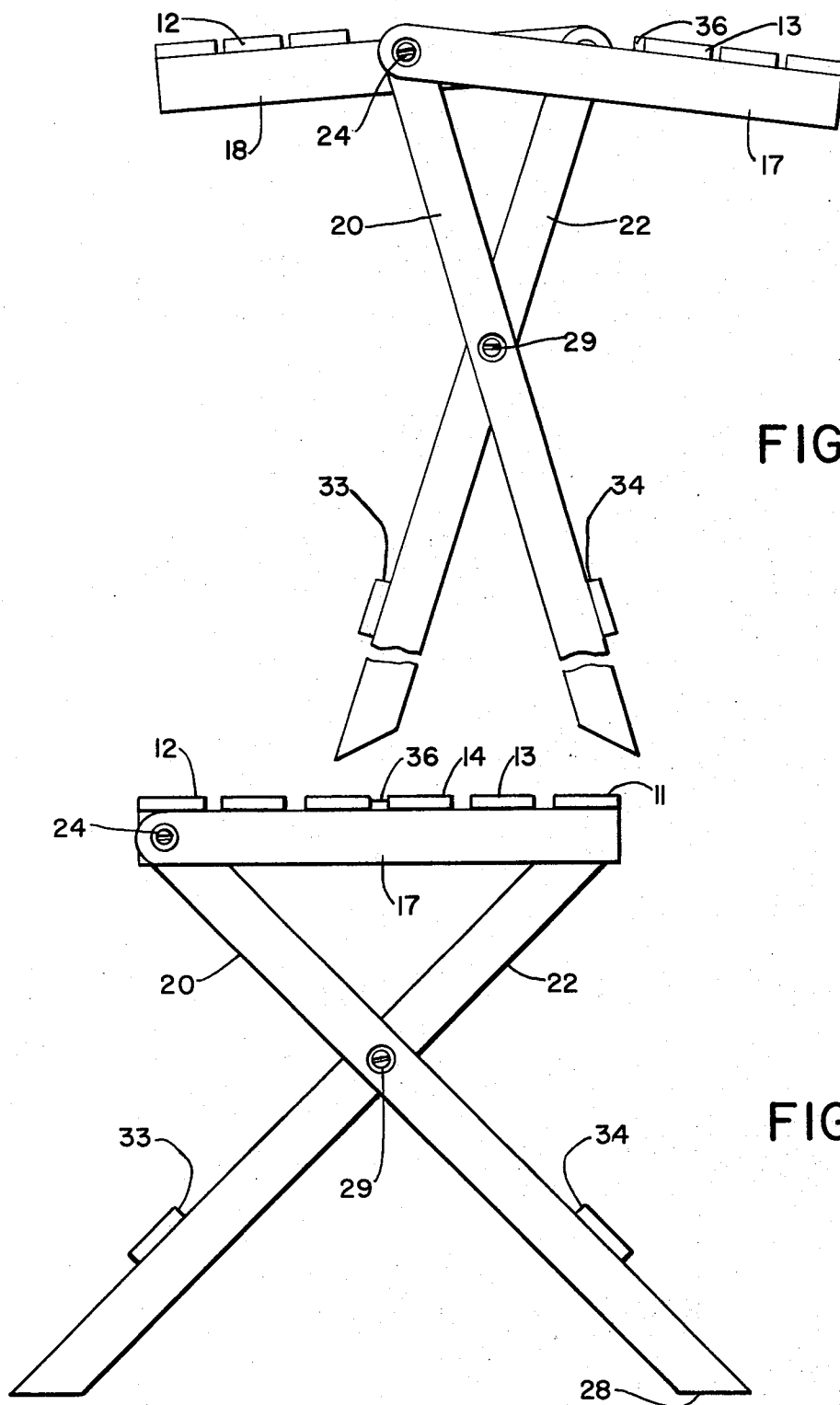
An article of furniture movable between an erect position and a folded generally planar position is provided

including a top planar supporting surface formed by two mating halves when the article is in its erect position. A first pair of braces are secured to the undersurface of one of the halves and extend in a direction normal to the line of mating of the halves and under the undersurface of the other of the halves to support the other of the halves when the article is in its erect position. A second pair of braces are spaced inwardly of the first pair of braces and are secured to the undersurface of the other of the halves and extend in a direction opposite to the first pair of braces and under the undersurface of the first of the halves to support the first of the halves when the article is in its erect position. Leg members for supporting the article in its erect position are pivotally secured to the free ends of the braces and cross on opposite sides of the top surface and are pivotally connected at their point of crossing. A bar is pivotally connected to the second pair of braces and the leg members pivotally connected thereto to provide both a support for the underside of the half having the first pair of braces secured thereto and a handle for carrying the article when it is folded into its generally planar position.

**13 Claims, 8 Drawing Figures**



SHEET 1 OF 3



FIG\_4

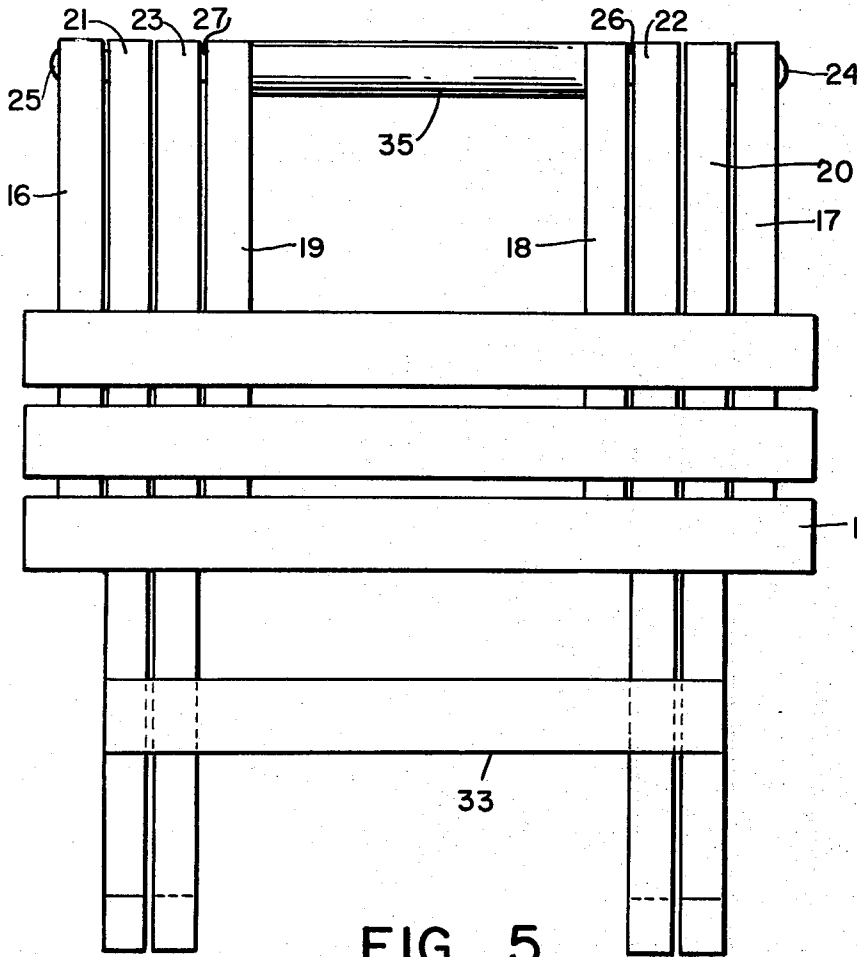
FIG\_1

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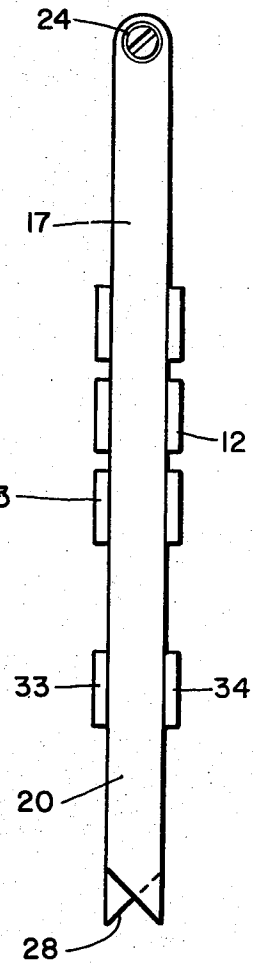
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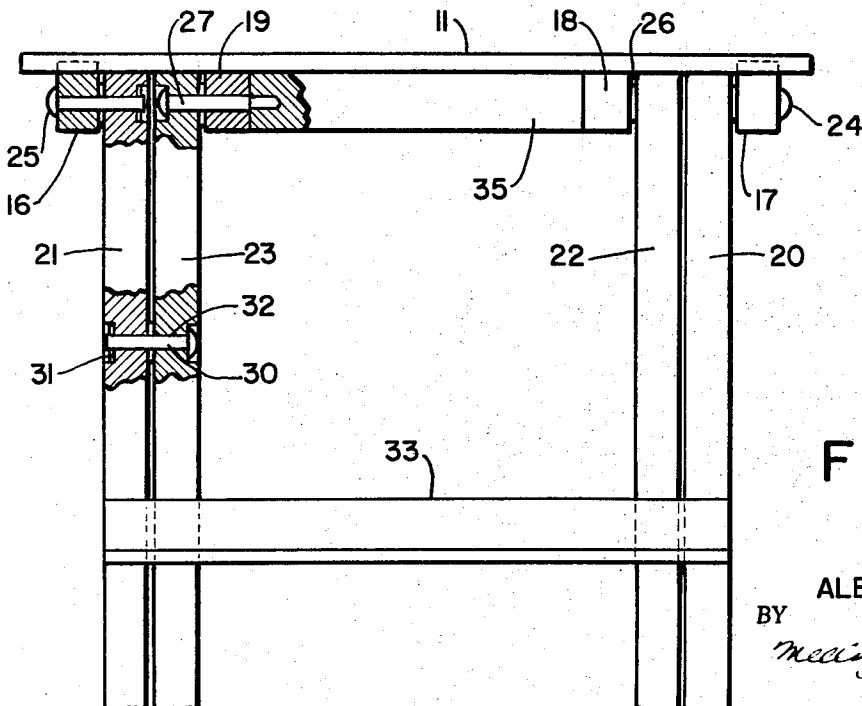
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FIG\_5



FIG\_6



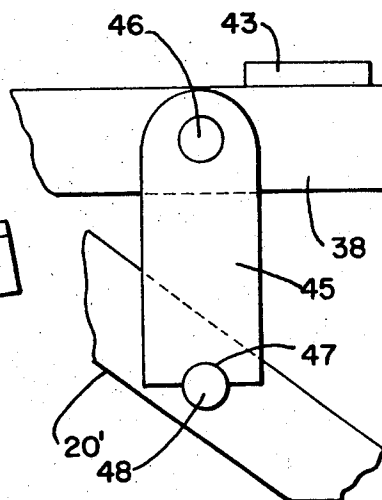
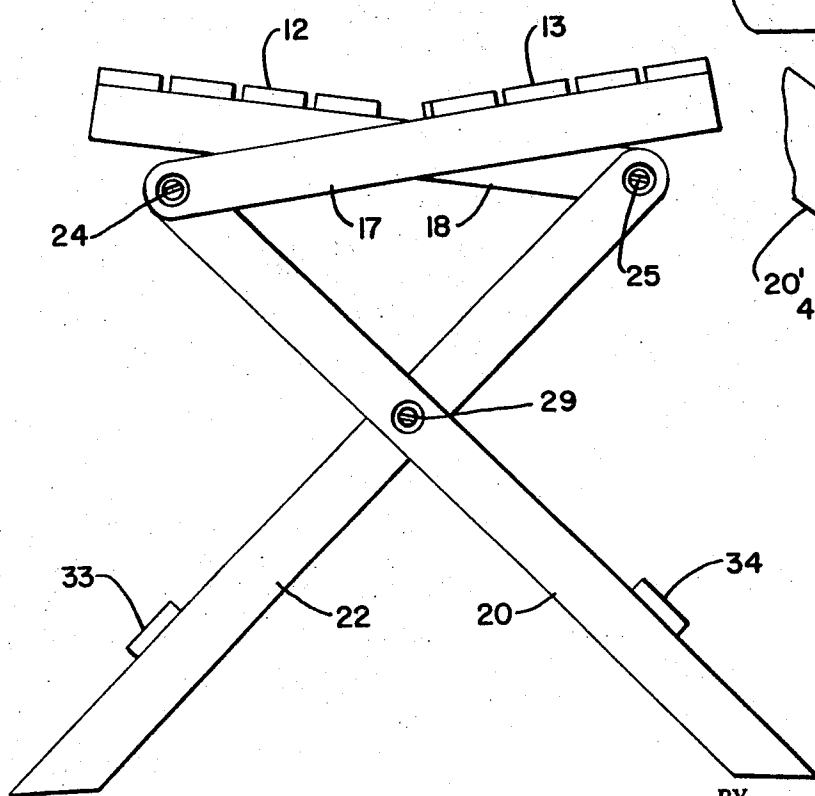
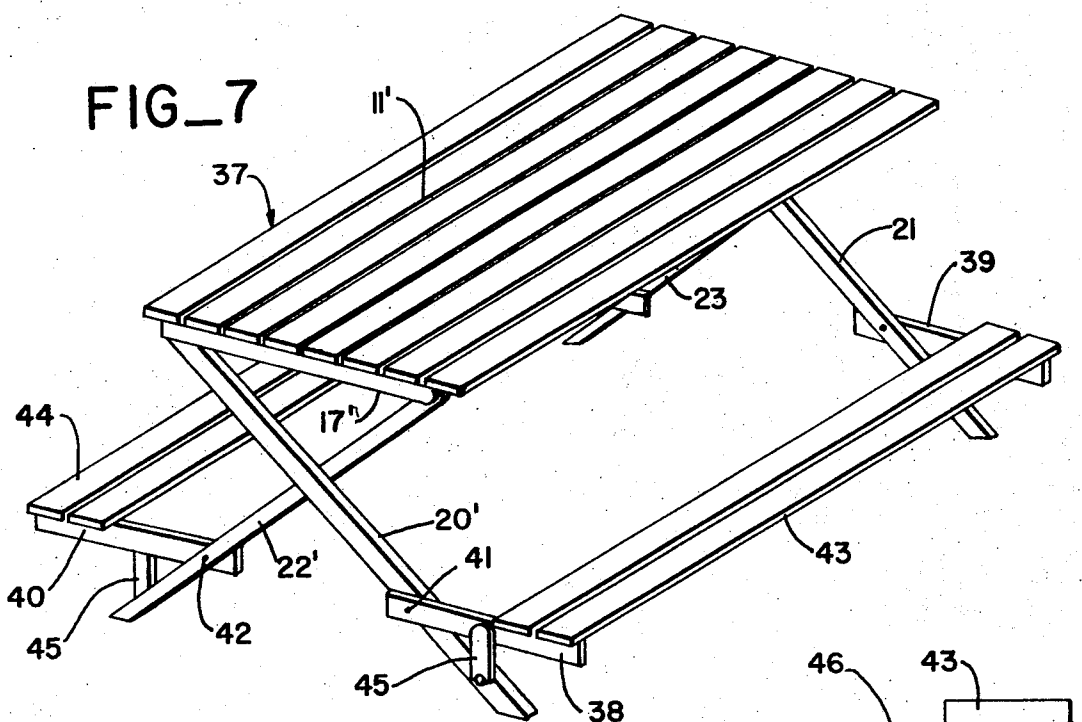
FIG\_2

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**FIG\_3**

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**FOLDABLE ARTICLE OF FURNITURE****BACKGROUND OF THE INVENTION****1. Field of the Invention**

The invention relates to articles of furniture; and, more particularly, to an article of furniture movable from an erect position forming a supporting surface to a folded generally planar position having a handle for carrying the folded article of furniture.

**2. Description of the Prior Art**

With the increased mobility of modern living and the utilization of more leisure time and recreational activities, a need exists for furniture which can be both carried conveniently from one place to another or used in confined or limited areas, such as campers, trailers, etc. One suggested type of furniture is a collapsible or foldable article which can be stored in relatively small spaces, then quickly erected to provide a supporting surface. Such articles of furniture generally include benches, chairs, tables, etc., and are light-weight enough that they may be conveniently carried from one place to another.

However, known prior art foldable or collapsible articles of furniture present many problems. Such articles generally are not conveniently movable when in their folded position, thereby requiring independent means for both maintaining the various components making up the article in a folded or collapsed position and other means for conveniently grasping the folded or collapsed article for carrying it. If such independent means are eliminated, as by an attempt to build them into the article itself, the article may not be strong enough to support a reasonable use thereof, such as use as a chair or the like.

For example, one such folding sectional article of furniture is described in a U.S. Pat. to Thompson, No. 2,587,010. However, the article of Thompson requires an independent special handle for carrying his article in its folded position, thus adding to the manufacturing costs. Further, as can be seen in FIG. 1 of the Thompson patent, the braces 7, 8 of Thompson do not support the full length undersurface of the top supporting surfaces 1, 2. This is to allow full interfitting folding of the parts of his article to form the completely flat planar package of FIG. 6. However, this results in a large unsupported area on each side of top surfaces 1, 2. Also, the surfaces 1, 2 are flat and planar and could not be slatted or the like, which would be more aesthetically pleasing since additional support for the slats would have to be provided. Finally, as can be seen in FIG. 1 of Thompson, pushing down on his article of furniture along the point of contact of surfaces 1 and 2 might collapse the article.

**SUMMARY OF THE INVENTION**

It is an object of this invention to provide a foldable article of furniture which can be readily transported from one place to another.

It is a further object of this invention to provide a foldable article of furniture which presents a stable supporting top planar surface.

It is a still further object of this invention to provide a foldable article of furniture having a handle for carrying the article in its folded position which also supports the top planar surface thereof in its erect position.

It is a still further object of this invention to provide such an article of furniture which takes up relatively little storage space in its folded or collapsed position.

These and other objects are preferably accomplished by providing an article of furniture which is movable between an erect position and a folded generally planar position, including a top planar supporting surface formed by two mating halves when the article is in its erect position. A first pair of braces are secured to the undersurface of one of the halves and extend in a direction normal to the line of mating of the halves and under the undersurface of the other of the halves to support the other of the halves when the article is in its erect position. A second pair of braces are spaced inwardly of the first pair of braces and are secured to the undersurface of the other of the halves and extend in a direction opposite to the first pair of braces and under the undersurface of the first of the halves to support the first of the halves when the article is in its erect position. Leg members for supporting the article in its erect position are pivotally secured to the free ends of the braces and cross on opposite sides of the top surface and are pivotally connected at their point of crossing. A bar is pivotally connected to the second pair of braces and the leg members pivotally connected thereto to provide both a support for the underside of the half having the first pair of braces secured thereto and a handle for carrying the article when it is folded into its generally planar position. The leg members may include either brackets thereon for bracing the leg members whereby the article may be used as a chair or the like, or a second planar supporting surface below the first supporting surface whereby the top surface may be used as a table or the like and the bottom or second surface may be used as a bench or the like for the table.

**BRIEF DESCRIPTION OF THE DRAWING**

FIG. 1 is a vertical side view of an article of furniture in accordance with my invention in its fully unfolded or erect position;

FIG. 2 is a vertical front view of the article of furniture of FIG. 1 with portions thereof broken away for convenience of illustration;

FIG. 3 is a vertical side view of the article of furniture of FIG. 1 showing the first step in moving it to its folded position;

FIG. 4 is a vertical side view of the article of furniture of FIG. 1 showing the second step in moving it to its folded position;

FIG. 5 is a vertical front view of the article of furniture of FIG. 1 in its fully folded position;

FIG. 6 is a vertical side view of the folded article of furniture of FIG. 4;

FIG. 7 is a perspective view of a modification of the article of furniture of FIG. 1; and

FIG. 8 is a detailed view of a portion of the article of furniture of FIG. 7.

**DESCRIPTION OF THE PREFERRED EMBODIMENT**

Referring to FIG. 1 of the drawing, an article of furniture 10 is shown in its fully erect position. As can be seen in FIGS. 1 and 2, the article of furniture 10 is in the general form of a chair, stool, bench, table, or the like, having an upper planar surface 11 when in its fully

erect position. Planar surface 11 is comprised of a pair of mating halves 12 and 13 (see also FIGS. 3 and 4) formed of a plurality of slats 14 or the like. When the article of furniture 10 is in its fully erect position of FIGS. 1 and 2, halves 12 and 13 meet generally at the midpoint of top planar surface 11.

The slats 14 forming the half 13 of top planar surface 11 are secured to, as by gluing or the like, a pair of elongated brace members 16 and 17 (see FIGS. 2 and 5 for brace member 16). As can best be seen by a comparison of FIGS. 4 and 5, brace members 16 and 17 are disposed on each side of half 13 and extend from one end of half 13 to the undersurface of the slats 14 forming the other half 12. Since, as will be discussed further hereinbelow and can best be seen in FIG. 5, the slats 14 extend past the brace members on both halves 12 and 13, brace members 16 and 17 also act as a support for half 12 when the article of furniture 10 is in its fully erect position (FIG. 1).

The slats 14 of the other half 12 are also secured to a pair of elongated brace members 18 and 19 (see also FIG. 5), which members 18 and 19 are also disposed on each side of half 12 and extend from one end thereof along the undersurface of half 13 to also act as a support therefor. These latter brace members 18 and 19 are spaced inwardly of brace members 16 and 17 for reasons to be discussed hereinbelow. Also, they extend in a direction opposite to each other and normal to the axis passing through the point of mating of the halves 12 and 13.

Leg members 20 through 23 are pivotally connected, as by pivot pins 24 through 27, respectively, or the like, to the free ends of brace members 16 through 19 (see particularly FIGS. 2 and 5). These leg members 20 through 23 may be canted or the like, as at cant 28, for example, on their lower ends so that top planar surface 11 is generally horizontal when the article of furniture 10 is placed on a supporting surface.

The leg members on each side of planar surface 11 cross each other and are pivotally connected thereto. For example, leg members 20 and 22 cross each other and are pivotally connected by means of pivot point 29 or the like (FIG. 1). Leg members 21 and 23 cross each other and are pivotally connected by means of a pivot point 30 or the like. It should be noted that all such pivot points may include any suitable means, such as a washer 31 and rivet 32 as shown at point 30 with the head of rivet 32 and washer 31 being countersunk so that no interference is presented when the article of furniture 10 is moved between its folded and erect positions. This is also true of all the pivot means disclosed herein.

Preferably, opposed leg members are braced to provide a more stable base of surface 11. For example, one or more members such as a slat 33 preferably extends between and is secured to leg members 22 and 23 (see FIGS. 2 and 5) while one or more members such as a slat 34 preferably extends between and is secured to leg members 20 and 21 (not visible in FIGS. 2 and 5). The slats 33 and 34 are preferably flush with the edges of their respective leg members (see FIG. 2) so that when the article of furniture 10 is moved from its folded to its erect position, the halves 12 and 13 are grasped rather than slats 33 and 34 which are not as well supported.

It can be seen in FIG. 5 that the spacing between brace members 16 through 19 and leg members 20 through 23 is such that these elements can move about their respective pivots with respect to each other. Further, in addition to the support for halves 12 and 13 provided by brace members 16 through 19, a member 35 or the like in the preferred form of a cylindrical rod extends between inner brace members 18 and 19 (see FIGS. 2 and 5). This member 35 is pivotally secured to both brace member 19 and leg member 23 at one end and brace member 18 and leg member 22 at the other. The same pivot means used to pivotally connect brace members 18 and 19 to leg members 22 and 23, respectively, is preferably used to pivotally connect member 35 thereto.

As can be seen in FIG. 2, in the fully erect position of the article of furniture 10, the member 35 supports the undersurface of half 13. In the fully folded position of FIG. 5, member 35 is at the top thereof and can be used as a handle to conveniently carry the folded article of furniture.

As can be seen in FIGS. 1 and 4, a pair of spaced elements 36 are associated with one or both of the halves 12 or 13, such as being secured to half 13, and may also be secured to brace members 16 and 17, if desired. These elements 36 are of a width generally related to the distance between slats 14 and are generally as wide as the upper surface of brace members 16 and 17. Since these spacer elements 36 are associated with the slat which is adapted to mate with the leading slat on the other half to form top planar surface 11, the distance between halves 12 and 13 is maintained generally equal to the distance between the slats 14 to give an aesthetically pleasing appearance to surface 11.

Referring back to FIG. 1, the article of furniture 10 is in its fully erect position. The two halves 12 and 13 are grasped and pulled upwardly and outwardly to the position shown in FIG. 3 whereby leg members 20 through 23 pivot about pivot points 24 through 27, 29 and 30. The pivoting of the article of furniture 10 is continued to the FIG. 4 position wherein the upper portions of pivot points 24 through 27 come together in a generally axial line when halves 12 and 13 are moved downwardly until the brace members 16 through 19 and leg members 20 through 23 are generally parallel to each other. The final folded position is shown in FIGS. 5 and 6. It can thus be seen how the article of furniture 10 can be readily and easily moved back and forth between its fully erect and fully folded positions. In the fully folded position, the folded article presents a generally planar position (see particularly FIG. 6) wherein the member 35 can be used as a handle to carry article 10 and all of the slats 14 on half 12 lie generally in the same plane as slat 34 and the slats 14 on half 13 lie generally in the same plane as slat 33 and all of the brace and leg members are generally parallel to each other.

The article of furniture 10 of FIGS. 1 through 6 may be of any convenient size and thus surface 11 could be used as a seat, table top, etc. However, the teachings of my invention may be applied to an article of furniture wherein, in addition to a table top or the like, one or more seats may be built into such article of furniture. For example, referring now to FIGS. 7 and 8 wherein like primed numerals refer to like parts of the article of

furniture 10 of FIGS. 1 through 6, an article of furniture 37 is shown. However, in place of slats 33 and 34 of the article of furniture 10, a plurality of supporting brackets or rods are pivotally connected to leg members 20' and 21' respectively (only rods 38 through 40 and pivot points 41 and 42 being visible in FIG. 7). Since the rods on leg members 20' and 21' are on the outside thereof while the rods on leg members 22' and 23' are on the inside thereof, they are adapted to pivot to a position parallel to their respective leg members when the article of furniture 37 is in its folded position. One or more slats 43 and 44 are secured to the upper surfaces of the rods as shown in FIG. 7 to present a generally horizontal planar surface below top surface 11' to provide a seat for surface 11' (which may be a table top). Since the rods connected to slats 43 and 44 pivot to a position parallel to their leg members in the folded position of the article of furniture 37, the slats 43 and 44 also move to a position wherein the planes thereof are generally coincident with the planes of the folded halves forming top planar surface 11' in the manner discussed hereinabove with respect to slats 33 and 34 and halves 12 and 13 of the article of furniture 10.

Referring now particularly to FIG. 8, means are provided for maintaining the upper surfaces of slats 43 and 44 in a generally horizontal position and supporting slats 43 and 44 when the article of furniture 37 is erected for use as a table or the like. Thus, braces 45 may be pivotally connected, as at pivot point 46, to their respective rods (rod 38 shown in FIG. 8). A groove 47 or the like is preferably formed on the bottom of each brace 45. A pin 48 or the like is disposed on the leg member (20' shown in FIG. 8). Thus, when brace 45 is in a generally vertical position, pin 48 enters groove 47 to support slats 43 in a generally horizontal position. Of course, any suitable means may be provided to maintain slats 43 and 44 in a generally horizontal position. The only requirement is that such means be movable or pivotable to "fold up" when the article of furniture 37 is in its folded position and the pivot means not interfere with such folding. Thus, the braces 45 for the rods of slats 43 are on the outside of legs 20' and 21' while the braces 45 for the rods of slats 44 are on the inside of legs 22' and 23'.

It can be seen from the foregoing that I have described articles of furniture which are aesthetically pleasing to the eye, provide sufficient support to bear the weight to which such articles are subjected, can be quickly moved between fully folded and erect positions, take up very little storage space in the folded position, and provide a handle which is also a support member for the article to carry the article from one place to another.

I claim as my invention:

1. An article of furniture movable between an erect position forming said article of furniture and a folded generally planar position for carrying said article comprising:

a top member composed of two mating halves forming a planar supporting surface when said article is in its erect position;

a first pair of elongated brace members fixedly secured at one end to the undersurface of one of said halves on each side thereof and extending in a

direction substantially normal to the axis passing through the point of mating of said halves and the other end thereof extending along the undersurface of the other of said halves to generally the outer limit thereof to provide a support for the undersurface of the other of said halves when said article is in its erect position;

a second pair of elongated brace members fixedly secured at one end to the undersurface of the other of said halves on each side thereof and spaced inwardly of said first pair of brace members when said article is in its erect position, said second pair of brace members extending in the opposite direction as said first pair of brace members and also substantially normal to the axis passing through the point of mating of said halves with the other end of each of said second brace members extending along the undersurface of the first of said halves to generally the outer limit thereof to provide a support for the undersurface of the first of said halves when said article is in its erect position;

leg members for supporting said article when in an erect position pivotally connected to the free ends of each of said brace members, the pair of said leg members connected to the brace members on opposite sides of their respective halves crossing each other and being pivotally connected at their point of crossing; and

means extending between the second pair of brace members at their other ends and pivotally connected to both said second pair of brace members and the leg members pivotally connected thereto for providing both a support for the underside of said half having said first pair of brace members fixedly secured thereto when said article is in its erect position and a handle for carrying said article when said article is in its folded generally planar position.

2. The article of furniture of claim 1 wherein each of said pair of brace members extend along and are secured to their respective halves along generally the entire undersurface thereof from one side of said halves to the other.

3. The article of furniture of claim 1 wherein said means is a cylindrical rod.

4. The article of furniture of claim 1 wherein said halves are comprised of a plurality of spaced slats secured to their respective brace members.

5. The article of furniture of claim 4 including spacer means associated with at least one of said halves at the point of mating of said halves when said article is in its erect position for spacing one of said halves from the other.

6. The article of furniture of claim 5 wherein said spacer means includes a pair of spacer members secured to one of said halves and occupying a space formed between said halves when said article is in its erect position generally related to the spaces between said slats forming said halves and having upper surfaces substantially flush with the upper surfaces of said slats.

7. The article of furniture of claim 6 wherein said spacer members are generally as wide as the brace members associated with the half to which they are secured in a direction parallel to the axis passing through the point of mating of said halves.

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8. The article of furniture of claim 1 including bracing means secured to and extending between the leg members pivotally secured to both said first pair of brace members and said second pair of brace members for bracing all of said leg members.

9. The article of furniture of claim 8 wherein said bracing means includes at least one slat member having the plane thereof substantially normal to the plane of said leg members to which they are secured, said plane of said slat members being generally coincident with the plane of the half of said top member pivotally secured to each pair of respective leg members when said article is in its folded generally planar position.

10. The article of furniture of claim 1 including at least a second planar surface associated with the leg members of said article of furniture disposed below said first-mentioned planar surface and being generally horizontal on its upper surface when said article is in its fully erect position.

11. The article of furniture of claim 10 wherein a plurality of rods are pivotally connected to all of said leg members below said top planar surface and extend in a

direction generally horizontal to said top planar surface when said article is in its fully erect position and generally parallel to its respective leg member when said article is in its fully folded position, and one second planar surface being secured to the pair of rods connected to the leg members on one side of said article of furniture and another second planar surface being secured to the pair of rods connected to the leg members on the other side of said article of furniture.

12. The article of furniture of claim 11 wherein both said second planar surfaces are comprised of a plurality of slats secured to their respective rods, the planes of said last-mentioned slats being generally coincident with the half on the respective side of said article of furniture when said article of furniture is in its fully folded position.

13. The article of furniture of claim 11 including means associated with said leg members and said rods for supporting said second planar surfaces in a generally horizontal position when said article is in its fully folded position.

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UNITED STATES PATENT OFFICE  
CERTIFICATE OF CORRECTION

Patent No. 3,692,358 Dated September 19, 1972

Inventor(s) Albert Y. Sung

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 8, line 21, "folded" should read --erect--.

Signed and sealed this 27th day of March 1973.

(SEAL)  
Attest:

EDWARD M. FLETCHER, JR.  
Attesting Officer

ROBERT GOTTSCHALK  
Commissioner of Patents