United States Patent [19]

Loewen

[11] **3,788,696**

[45] **Jan. 29, 1974**

[54] **FOLDABLE TABLE AND BENCH ASSEMBLY**

[76] Inventor: **Jacob L. Loewen,** General Delivery, Altona, Manitoba, Canada

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[52] **U.S. Cl.** **297/159**
[51] **Int. Cl.** **A47b 39/00**
[58] **Field of Search** 297/157, 159

[56] **References Cited**

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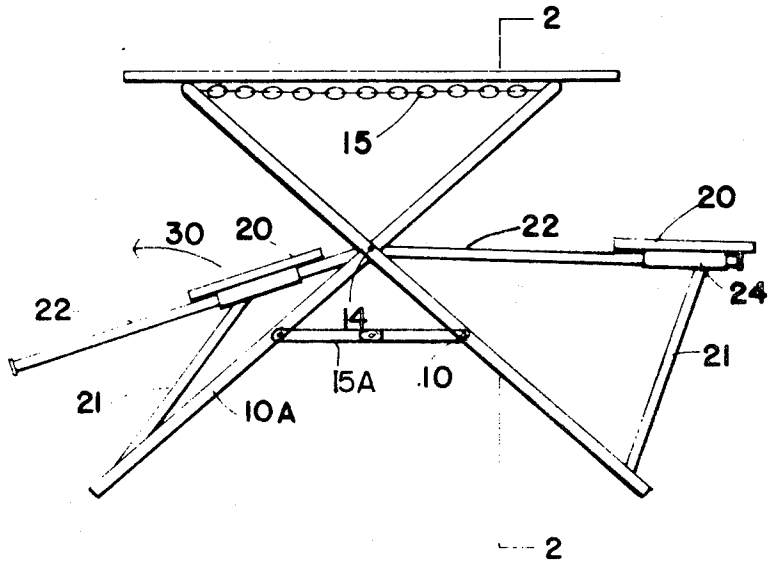
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Primary Examiner—James C. Mitchell
Attorney, Agent, or Firm—Stanley G. Ade

[57] **ABSTRACT**

A pair of leg frames are pivoted between the ends to present an "X" formation when open and support a table top. A bench is erected upon each side of the table and includes horizontal tension arms, substantially vertical compression legs and a bench seat. As the horizontal arms are moved from the folded position to the horizontal position, the vertical legs are unfolded and support the bench surface which moves to the horizontal position. The benches are first folded down and then the cross frames are folded together with the table top lying substantially vertically against the folded structure, when the assembly is in the folded or stored position.

8 Claims, 6 Drawing Figures



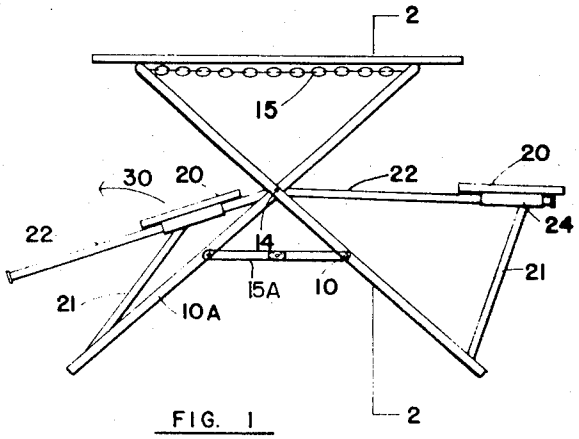
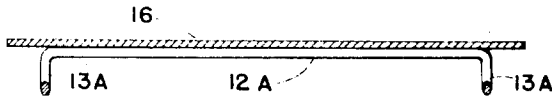


FIG. 1



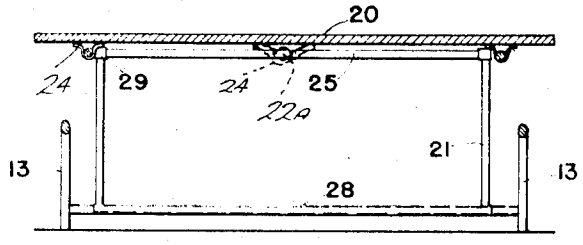


FIG. 2

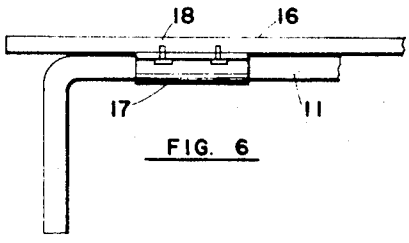


FIG. 6

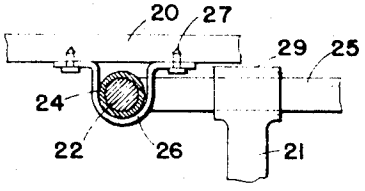


FIG. 5

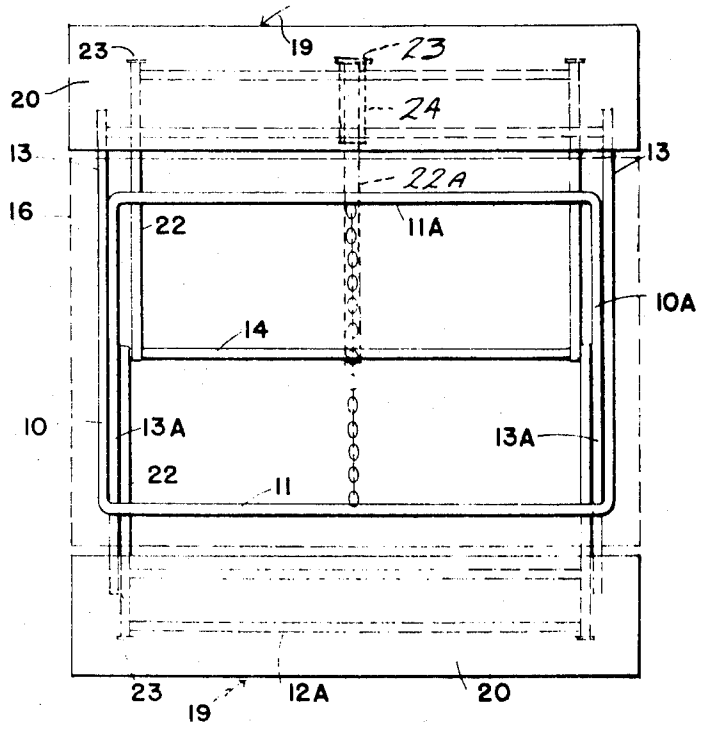

19
23
23
20
24
13
13
22A
16
22
11A
10A
14
10
13A
13A
22
11
23
19
12A
20

FIG. 3

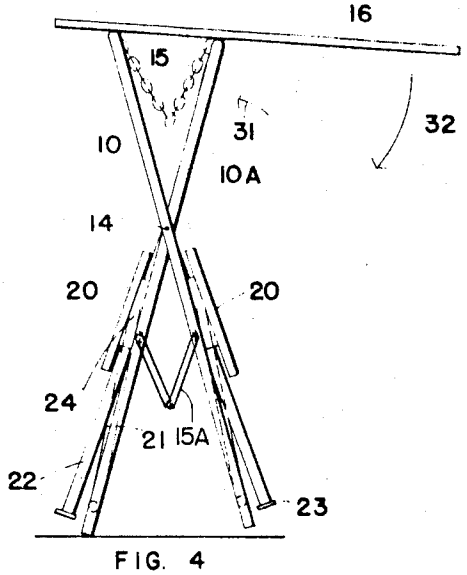

16
15
31
32
10
10A
14
20
20
24
21
15A
22
23

FIG. 4

FOLDABLE TABLE AND BENCH ASSEMBLY

BACKGROUND OF THE INVENTION

So-called picnic tables usually consist of a table top and a fixed bench, one upon each side thereof. While these are most efficient in use, nevertheless storage and transportation is a problem due to the sheer bulk of these assemblies.

Attempts have been made to provide folding assemblies but these usually require tools and include parts to be dismantled prior to the folding and unfolding action.

SUMMARY OF THE INVENTION

The present invention relates to new and useful improvements in table and bench combinations inasmuch as the entire assembly can be folded and unfolded without the use of tools or without connecting or disconnecting any of the parts.

An object of the invention is therefore to provide a picnic table type assembly which can be folded relatively flat for storage and transportation purposes yet which can readily be unfolded for use to provide a stable and firm table and bench assembly.

Another object of the invention is to provide a device of the character herewithin described in which the bench components pass over center when being unfolded so that there is no danger of collapse when in use.

A still further object of the invention is to provide a device of the character herewithin described which is simple in construction, economical in manufacture, and otherwise well suited to the purpose for which it is designed.

With the considerations and inventive objects herein set forth in view, and such other or further purposes, advantages or novel features as may become apparent from consideration of this disclosure and specification, the present invention consists of the inventive concept which is comprised, embodied, embraced, or included in the method, process, construction, compostion, arrangement or combination of parts, or new use of any of the foregoing, herein exemplified in one or more specific embodiments of such concept.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is an end view of the assembly in the erected position but with one bench component partially folded.

FIG. 2 is a section substantially along the line 2—2 of FIG. 1.

FIG. 3 is a top plan view of the assembly in the erected position with the table top shown in phantom for clarity.

FIG. 4 is an end view of the assembly in the folded position but shown slightly unfolded for clarity.

FIG. 5 is an enlarged fragmentary view showing part of the mounting of the bench to the supporting structure.

FIG. 6 is a fragmentary elevation showing the mounting of the table top to one of the leg assemblies.

In the drawings like characters of reference indicate corresponding parts in the different figures.

DETAILED DESCRIPTION

Proceeding therefore to describe the invention in detail, reference should be made to the drawings in which reference characters **10** and **10A** illustrate leg frame components. Each of these components includes an upper bar member **11**, a lower bar member **12**, and a pair of side bar members **13** which extend between the ends of the upper and lower bar members **11** and **12** thus forming a substantially rectangular component. Similar reference characters have been given to the components of the leg frame member **10A** except that the letter "A" has been added.

The two leg components **10** and **10A** are pivotally connected together intermediate the ends of the side bar members **13** and **13A**, by means of a transverse pivot pin **14** and in this connection it will be observed that the leg frame component **10A** is slightly narrower than the leg component **10** so that one can fit within the other as clearly shown in FIG. **3.** When pivotally connected together, they form a "X" configuration when viewed in end elevation as clearly shown in FIG. **1** and can be folded upwardly to the closed position shown in FIG. **4** or can be folded downwardly to the extended or erected position shown in FIG. **1.** In the latter position, the downward movement of the upper bar members **11** and **11A** is restricted by means of flexible linkage **15** extending between the upper bar members intermediate the ends thereof.

A table top **16** consists of a planar panel which rests upon the upper bar members **11** and **11A** when in the erected position. The table top is secured to one of the upper bar members **11** by means of brackets **17** extending around the upper bar and member **11** and being secured to the underside of the table top panel **16** by means of screws, rivets or similar fastening means indicated by reference character **18.** This enables the table top to pivot on the bar member **11** and to rest on the bar member **11A** when in the erected position shown in FIG. **1.**

A bench component collectively designated **19** is situated upon the assembly each side of the table top **16** and each component consists of an elongated bench panel **20,** substantially vertical leg or compression members **21** and substantially horizontal or tension members **22.**

The members **22** are pivotally secured by the inner ends thereof to the transverse pivot **14** and extend outwardly in spaced and parallel relationship two upon each side. Stop means **23** are provided on the outer ends of these members and bearing sleeves **24** engage around these members and can slide inwardly and outwardly therealong, being restricted in the outer movement by means of these stop means **23.**

A cross bar **25** extends between the sleeves **24** and the bench panel **20** is secured to sleeves **24** by means of clamps **26** extending therearound and being secured to the bench panel **20** by means of rivets, bolts or similar fastening means **27.**

An elongated sleeve **28** surrounds the lower bar members **12** and **12A** and the aforementioned compression legs **21** are secured to these elongated sleeves **28** by means of welding or the like and extend upwardly in spaced and parallel relationship one with the other, it being understood that these are two compression members **21** for each bench assembly **19.** Bearing sleeves **29** are provided upon the upper ends of the compression members **21** and these bearing sleeves engage around the aforementioned cross bars **25.**

The pivotal action of the compression members **21** and the pivotal action of the tension members **22**, in conjunction with the sliding relationship of sleeves **24** upon tension members **22**, means that the bench assemblies can be folded inwardly to lie contiguous with the leg frame components **10** and **10A** as shown on the left hand side of FIG. **1** or can be folded outwardly to the erected position as shown upon the right hand side of FIG. **1**. When moving from the folded to the erected position and vice versa, the compression members **21** pass over the vertical center thus preventing any possibility of the bench assemblies **19** collapsing when in the erected position.

When it is desired to fold the assembly to the closed or stored position, each bench assembly is folded inwardly contiguous with its leg frame component as shown on the left hand side of FIG. **1**, the table top is raised clear of the upper cross bar **11A** whereupon the two leg frame components can be folded upwardly towards one another so that the structure takes the form shown in FIG. **4**. Further movement of the leg frame components together, permits the table top panel **16** to lie substantially vertically upon the leg frame component **10** thus making a relatively compact package which is easily stored or transported.

To erect the assembly, the table top is raised thus allowing the leg frame components to be opened to the fullest extent restricted by means of the flexible linkage **15** whereupon the table top rests upon the other upper bar member **11A**. Each bench assembly is then folded outwardly in the direction of arrow **30** to take upon the position shown at the right hand side of FIG. **1** thus making a stable and firm table and bench assembly.

In FIG. **4**, arrow **31** indicates the further closing of the leg frame components **10** and **10A** and arrow **32**, the downward pivotal movement of the table top panel **16** after the leg frame components have been fully closed one against the other.

Reference should be made to the members **22** upon which the benches slide. In order to provide easy access, the preferred embodiment employs just one of these members situated centrally along the length of the bench and shown in phantom by reference character **22A**.

Also in the preferred embodiment, a hinged strap assembly **15A** is used instead of the chains **15**. This strap assembly extends between the leg components **10** and **10A** and below the pivot pin **14**. The extended position of the strap assembly is shown in FIG. **1** while FIG. **4** shows the assembly in the folded position.

Various modifications may be constructed or performed within the scope of the inventive concept disclosed. Therefore what has been set forth is intended to illustrate such concept and is not for the purpose of limiting protection to any herein particularly described embodiment thereof.

What I claim as my invention is:

1. A table and bench assembly comprising in combination a pair of substantially rectangular leg frame components, each component including an upper bar member and a lower bar member and a pair of side bar members extending between the ends of the upper and lower bar members, said frames being pivotally connected between the ends of the side bar members to form an "X" construction when viewed in side elevation, a table top pivotally connected adjacent one edge thereof to the upper bar member of one of said leg frame members and resting on the upper bar member of the other leg frame member when in the erected position, means cooperating between said leg frame component to restrict the downward movement of the upper bar member when said leg components are erected, and a bench component on each side of said assembly, each of said bench components being pivotally supported on said lower bar members and further support means extending between said assembly and the points of pivotal connection of said leg frame members whereby said bench component can be folded to lie contiguous with said leg frame component or folded outwardly to the erected position.

2. The assembly according to claim **1** in which each of said bench components includes a pair of compression members pivotally mounted by the lower ends thereof to the lower bar member of said leg frame component, a cross bar pivoted between the other ends of said compression members, at least one tension member pivotally secured by the inner ends thereof to the points of pivotal connection of said leg frame components, means mounting said cross bar for sliding movement along said tension members, and a bench member secured to said last mentioned means and spanning said tension members.

3. The assembly according to claim **1** in which said means cooperating between said leg frame components comprises flexible linkage secured between said upper bar members.

4. The assembly according to claim **2** in which said means cooperating between said leg frame components comprises flexible linkage secured between said upper bar members.

5. The assembly according to claim **1** which include compression members which pass over center when moved from the folded position to the extended position and vice versa.

6. The assembly according to claim **2** in which compression members pass over center when moved from the folded position to the extended position and vice versa, and stop means on the outer ends of said tension members limiting the sliding movement of said means mounting said cross bar to said tension members.

7. The assembly according to claim **3** which include compression members which pass over center when moved from the folded position to the extended position and vice versa.

8. The assembly according to claim **4** in which compression members pass over center when moved from the folded position to the extended position and vice versa, and stop means on the outer ends of said tension members limiting the sliding movement of said means mounting said cross bar to said tension members.

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