Jan. 3, 1967 R. E. McCLELLAN 3,295,475

KNOCK-DOWN TABLE OR THE LIKE

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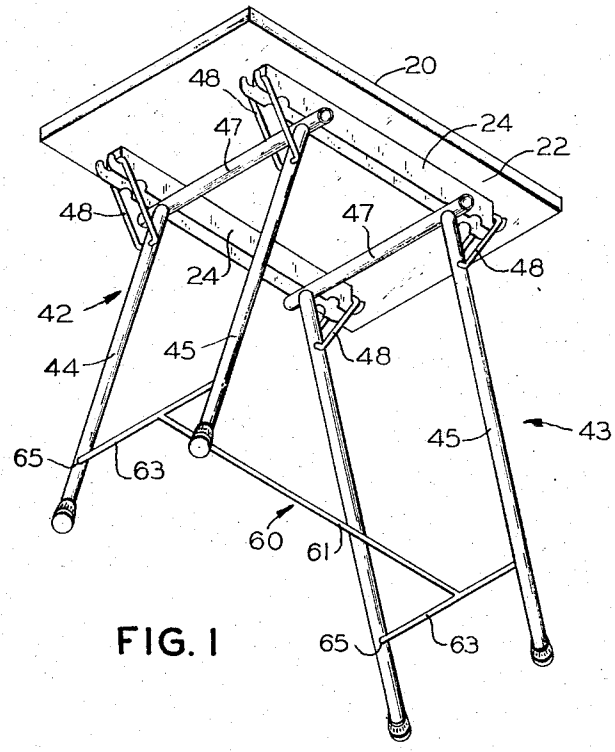


FIG. 1

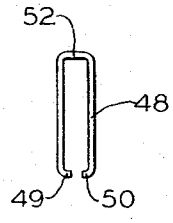


FIG. 4

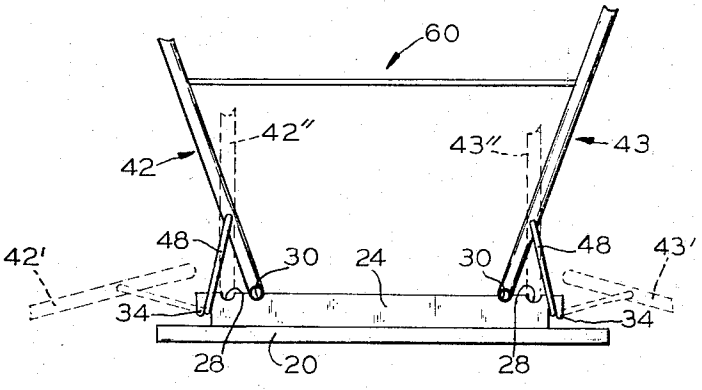


FIG. 2

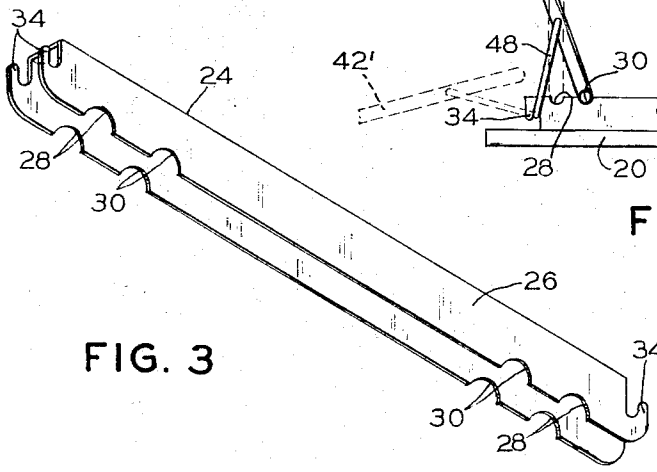


FIG. 3

INVENTOR.
RALPH E. McCLELLAN
BY
ATTORNEY

Jan. 3, 1967 R. E. McCLELLAN 3,295,475

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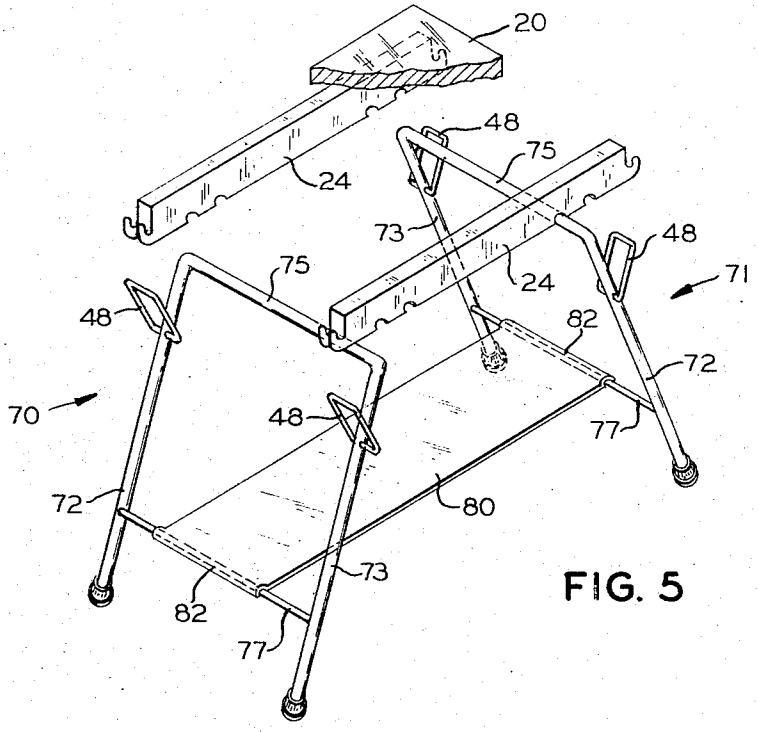


FIG. 5

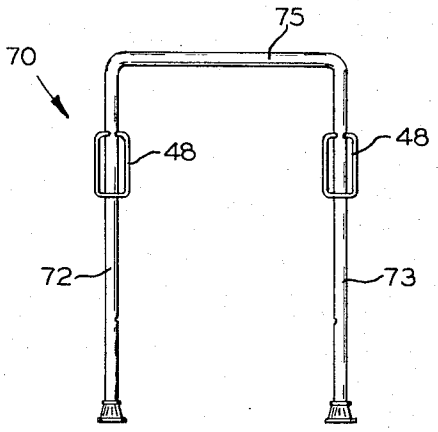


FIG. 6

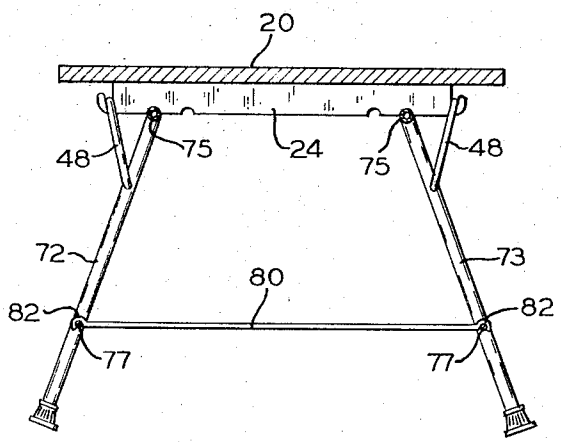


FIG. 7

INVENTOR.
RALPH E. McCLELLAN

BY Hugh A. Kirk

ATTORNEY

Jan. 3, 1967 R. E. McCLELLAN 3,295,475

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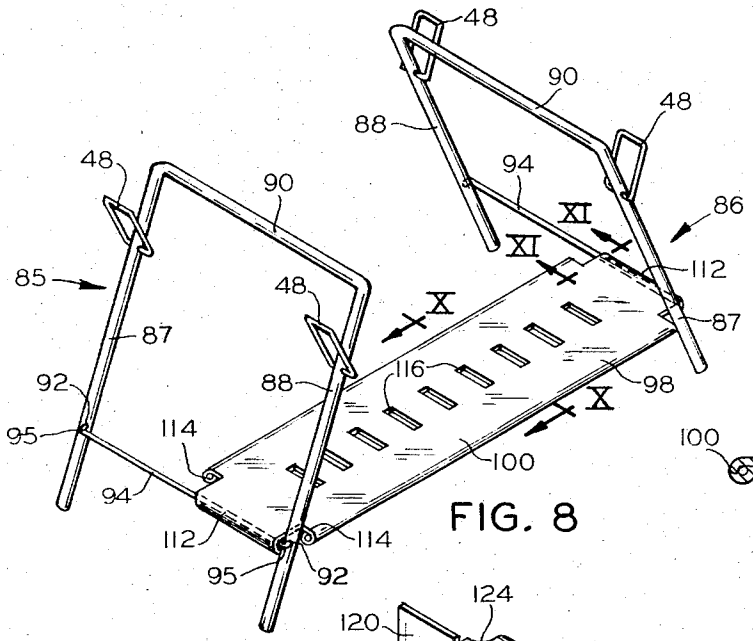


FIG. 8

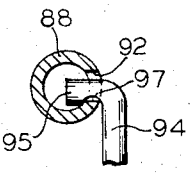


FIG. 9

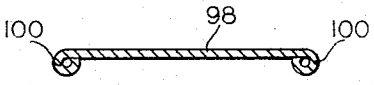


FIG. 10

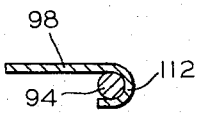


FIG. 11

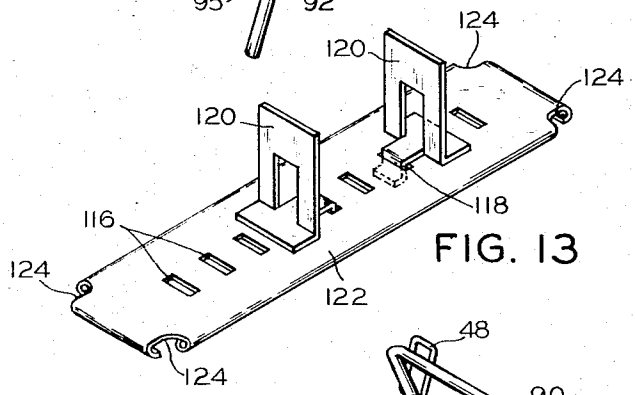


FIG. 13

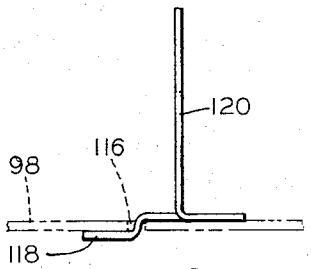


FIG. 12

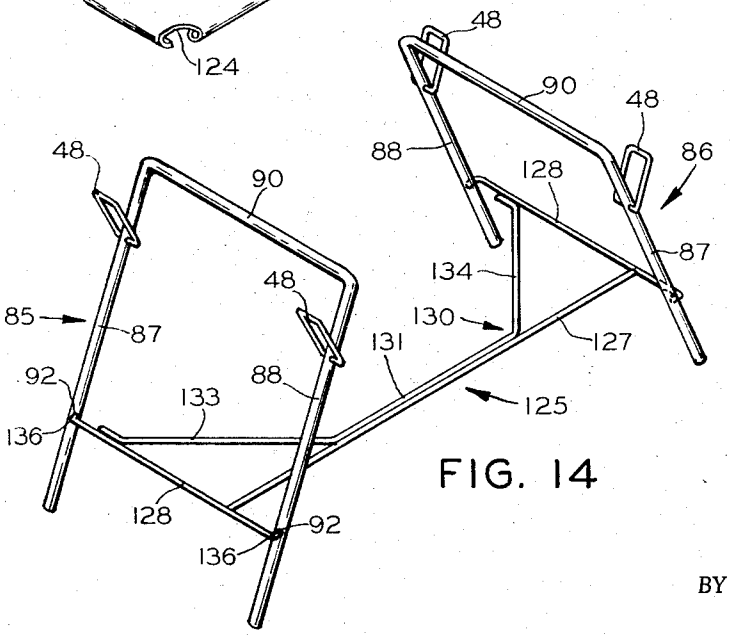


FIG. 14

INVENTOR.
RALPH E. McCLELLAN

BY Hugh A. Kirk

ATTORNEY

United States Patent Office 3,295,475 Patented Jan. 3, 1967

3,295,475

KNOCK-DOWN TABLE OR THE LIKE

Ralph E. McClellan, Toledo, Ohio, assignor to Meilink Steel Safe Company, Toledo, Ohio, a corporation of Ohio

Filed Sept. 3, 1965, Ser. No. 484,832
20 Claims. (Cl. 108—153)

This invention relates to horizontally supported planar surfaces and is particularly directed to articles of furniture such as tables and the like wherein a top member is supported by detachable or separable leg members.

An object of the invention is to provide an article of the class described having a minimum of parts easily and quickly assembled for use and disassembled for shipment or storage, and that is economically produced of light but durable materials.

Another object of the invention is to provide a light weight knock-down table that is readily portable in either assembled or disassembled condition and that is suitable for supporting typewriters and other similar machines as well as for general utility uses.

Another object of the invention is to provide a table that may be fabricated primarily of metal or sheet metal parts comprising a top or planar surface and supporting legs therefor of tubular form provided with means for detachably securing the parts together as well as means for bracing the structure to produce a substantially unitary rigid member.

Another object of the invention is to improve the knock-down support means disclosed in Strand U.S. Patent No. 2,794,496 issued June 4, 1957.

Generally speaking the invention comprises a table top or similar generally horizontal supporting surface provided with means such as bar members of channel form transversely notched to receive the bight portions of inverted generally U-shaped leg members, the channelled bar members being further provided with additional notches or hook means to receive bail members pivotally connected to the leg members to secure the leg members to the lower surface of the table top, there being further longitudinal and transverse brace means between the lower leg portions to retain the legs in stabilizing position.

The above mentioned and other features and objects of this invention and the manner of attaining them will become more apparent and the invention itself will be understood best by reference to the following description of an embodiment of the invention taken in conjunction with the accompanying drawings, wherein:

FIG. 1 is a perspective view of a table structure incorporating an embodiment of the invention;

FIG. 2 is an inverted side elevation of the table shown in FIG. 1, illustrating, in broken lines, the bails hooked into position prior to elevating the legs, as well as an alternate position for the legs;

FIG. 3 is an enlarged perspective view of one of the channel members mounted under the table top shown in FIG. 1;

FIG. 4 is a plan view of one of the bail members;

FIG. 5 is a perspective exploded view of a modified form of the invention incorporated in a table structure with part of the top broken away;

FIG. 6 is a plan view of one of the supporting means shown in FIG. 5;

FIG. 7 is a vertical sectional detail view of the structure shown in FIG. 5 to illustrate details of the tensioning means;

FIG. 8 is a perspective view of a further modification showing a pair of supporting leg means which have been

provided with a modified shelf type tensioning and stabilizing means with the top removed;

FIG. 9 is an enlarged detail view showing an interlock between the leg and tension means of FIG. 8;

FIG. 10 is an enlarged sectional detail view on a line X—X of FIG. 8;

FIG. 11 is an enlarged sectional detail view on a line XI—XI of FIG. 8;

FIG. 12 is a side elevation of a book end having an offset leg for assembly with the slotted shelf shown in FIG. 8;

FIG. 13 is a perspective view of a shelf similar to that shown in FIG. 8, and showing adjustable book ends in place thereon; and

FIG. 14 is a perspective view of still a further modification similar to FIG. 8 but having a pair of supporting legs having a modified form of stabilizing means which provides both lateral and longitudinal tension thereon, and with the top removed.

Referring to FIG. 1 of the drawings, one embodiment of the invention has been illustrated as including a generally rectangular platform or table top member **20** having a lower surface **22**. The top member **20** may be of wood, plywood, plastic, metal or other suitable material of any desired shape. A pair of channel members **24** may be secured to the lower surface **22**, one member **24** being adjacent one side and the other adjacent the opposite side of thetop member **20**. As shown, members **24** extend longitudinally and in substantially parallel, transversely spaced relation with respect to the top **20** illustrated.

The channel members **24** may be of channel-bar form in cross-section (FIG. 3) with the channel opening downwardly to provide depending side flanges **26** in the edges of which may be provided pairs of transversely aligned arcuate notches **28** and **30** adjacent each end thereof. The opposite ends of each flange **26** terminate in hook portions **34** which extend upwardly toward the lower surface **22** of top **20**.

Depending from opposite ends of channel members **24** are supporting means **42** and **43** of general torus, pi or inverted U-shape, each being comprised of a pair of tubular leg members **44** and **45** welded or otherwise secured to a cross member **47** which may project outwardly beyond each leg **44** and **45**. When assembled with the top member **20**, as shown, the cross members **47** have a bearing engagement in the notches **28** or **30** and may be retained in such position by link or bail means **48**. The bails **48** may be of U-shape having inturned leg ends **49** and **50** pivotally received in apertures in legs **44** and **45**, so that the bights **52** may be engaged with the hooks **34**.

Stabilizing or brace means, which may take the form of an H-shaped member **60** formed of a longitudinally extending rod **61** having a cross or transverse rod **63** at each end thereof, may be positioned between the legs, as shown, to rigidly locate the legs with respect to the top as well as each other. The ends of the rods **63** may be received in holes **65** in the legs **44** and **45**, each pair of legs being biased inwardly or the rods **63** may be of a length to require spreading the legs slightly to insert the ends into the holes **65**.

Assembly of the supporting means with the top **20** may be accomplished as shown in FIG. 2, wherein it will be noted that bights of the bails **48** are engaged with the hooks **34** when the supporting means **42'** and **43'** are in the dotted line positions shown so that the cross members **47** are spaced from the notches **28** or **30**. Then the cross-members **47** are subsequently moved toward such notch **28** or **30** and snapped thereinto against the tension of the bails. The stabilizing or brace means **60** is then positioned between the lower ends of the legs to not only lo-

cate the legs but also cooperate with bails **48** to retain the cross members **47** in position in the notches. When the members **47** are in notches **30**, the legs are outwardly inclined from the top, while when the members **47** are in notches **28**, the legs are substantially normal thereto and with respect to top **20** as shown by dotted lines **42''** and **43''** in FIG. 2.

Referring now to the modified form of the invention shown in FIGS. 5, 6 and 7, the supporting means **70** and **71** at opposite ends of the channel members **24** may be of generally A-shape, each including a pair of spaced leg members **72** and **73** connected at their upper ends by a cross member **75** which may be integral therewith. Intermediate the cross member **75** and the lower ends of legs **72** and **73** is a cross bar or rod **77** which may be welded in position to form a substantially integral, rigid "A" frame support or leg structure.

As particularly shown in FIG. 5, stabilizing or brace means in the form of a plate, tray or bar **80** of desired width may be positioned between the cross bars **77** longitudinally of and substantially parallel with the table top to rigidly position the supporting means **70** and **71** with respect to each other. As illustrated, the plate or tray **80** is formed with arcuate end portions or hook means **82** having radii to snugly embrace the bars **77**, preferably with a snap fit. Additionally, the tray **80** is of a length to apply a slight tension to, or draw the supporting means **70** and **71** together.

Referring now to FIG. 8, another form of supporting and brace means has been shown as comprising leg assemblies **85** and **86** each including a pair of spaced legs **87** and **88** connected at their upper ends by a cross member **90** to which a table top (not shown) may be secured by the links **48** in the same manner as the previous forms of the invention. Spaced from the lower end of each leg **87** and **88** is a hole **92** located as shown to receive a cross or transverse rod **94** having hooked ends **95** insertable in the holes **92**. As particularly shown in FIG. 9, the ends **95** of rods **94** are notched as at **97** to interlock with an inner edge of holes **92**, the legs **87** and **88** being initially spread so that rod **94** ends **95** may be snapped into engagement under tension.

Another form of shelf stabilizing or brace means **98** is also shown in FIG. 8, which shelf **98** may have rolled side edges **100** as shown in FIG. 10 and similarly formed rolled hook ends **112** as in FIG. 11. The corners of the shelf **98** may be cut out rectangularly as at **114** so that shelf **98** may be slid along rods **94** to engage the inside of the opposite legs **87** and **88** of each pair as shown in FIG. 8, to lock the leg assemblies **85** and **86** in set-up position thereby further stabilizing the whole structure. It will be noted also that by sliding the shelf **98** into its leg assembly locking position as shown in FIG. 8, space has been provided adjacent one side of the structure to accommodate the feet and legs of the person using the table.

Another feature of the shelf **98** or **122** shown in FIG. 13, is that a series of longitudinally spaced slits or slots **116** has been provided for receiving offset supporting legs **118** of a pair of book ends **120**, one of which is shown in FIG. 12. The book end **120** may be generally similar to a conventional sheet metal one except for leg **118** which is off-set between its ends to be hooked into one of the slots **116**.

In FIG. 13 is shown a slightly modified shelf **122** which may be substituted for shelf **98**, the corners **124** being arcuately cut out rather than of rectangular form as in FIG. 8. The cut-out portions **124** may be slid over to engage the legs **87** and **88** to lock the leg assemblies in a manner similar to that shown in FIG. 8.

A further embodiment of leg tensioning and stabilizing means is shown in FIG. 14 where it will be noted that as in FIG. 8, the leg assemblies **85** and **86** may also be of generally inverted U-shape, each including a pair of spaced legs **87** and **88** connected at their upper ends by a cross member **90** and carrying links **48**. Spaced from

the lower end of each leg **87** and **88** is a hole **92** positioned as shown.

Brace means, indicated generally at **125**, is inclusive of a longitudinally extending rod **127** having a cross or transverse rod **128** at each end thereof. Rod **127** is positioned off-center of rods **128** and when assembled with the legs may be located toward what may be considered the rear of the table. An additional rod means **130** may have a central portion **131** parallel and fixed to rod **127** and diagonal end portions **133** and **134** secured to opposite transverse rods **128** adjacent the ends thereof opposite to the ends adjacent which the rod **127** is attached. Rods **127**, **128** and **130** may be welded or otherwise secured together to provide a unitary, rigid structure, the end portions **136** of rods **128** being turned inwardly to enter the holes **92**. The end portions **136** may be notched in the same manner as ends **95** of rods **94** as shown in FIG. 9 to interlock with an edge of the holes **92**; the legs **87** and **88** being initially spread slightly so that when the brace means **125** is assembled therewith, the rods **128** will tension the legs and lock the ends **136** in the holes **92**.

Assembly of the supporting means **70** and **71** or **85** and **86** with the top **20** by means of the bails **48** may be accomplished in the same manner as the previously described form of the invention.

While there is described above the principles of this invention in connection with specific apparatus, it is to be clearly understood that this description is made only by way of example and not as a limitation to the scope of this invention.

What is claimed is:

1. A knock-down support comprising:

(a) a pair of parallel horizontally disposed top members provided with longitudinally disposed and laterally spaced notched and hook means,

(b) a pair of generally U-shaped tubular leg elements having the base portion of each U-shaped element engageable in said notch means,

(c) bail means pivotally secured to said leg portions of said U-shaped elements and engageable in said hook means to fix said leg elements to said members, and

(d) tension means disposed between said leg elements and between the leg portions of each of said leg elements to stabilize all of said leg elements and to tension said bail means.

2. A knock-down support for a platform means comprising:

(a) at least one pair of spaced seats on said platform means,

(b) at least one pair of hook means adjacent and on opposite outer sides of said seats,

(c) at least one pair of support members having ends locatable in said seats, and fastening means adjacent said ends,

(d) at least one pair of link means connected between said hook and said fastening means, and

(e) tension means removably connected between said support members spaced from said seats and fastening means for maintaining said ends of said members in said seats and said link means in engagement with said hook and said fastening means.

3. A support according to claim **2** including a pair of parallel channel members attached to said platform means which contains said seats and said hook means adjacent the ends of said channel members.

4. A support according to claim **2** wherein each of said support members comprises a pi-shaped member, and said seats comprise notches.

5. A support according to claim **4** wherein said tension means comprises rod means formed into a H-shape with each end connected to a leg of the pair of pi-shaped members.

6. A knock-down article of furniture comprising:

(a) a rectangular top member,

(b) upstanding hook means fixed to said top member adjacent opposite sides thereof,
(c) a support member at each side of said top member,
(d) each support member comprising a pair of legs and a cross member integral with the upper ends of the legs,
(e) bail means pivotally connected to said legs having bight portions engaging said hook means, and
(f) tension means bridging said legs adjacent their lower ends to retain said bail means in said hook means.

7. An article of furniture according to claim **6** including seat means adjacent said hook means for said cross members.

8. An article of furniture comprising:
(a) a substantially rectangular top member,
(b) channel members secured to the under surface of said rectangular top member,
(c) said channel members having side walls formed with seating notches and hook means,
(d) a pair of supports for said top member, each support including a pair of legs having spacing means at their upper ends received in said seating notches,
(e) bail means pivoted to said legs having bight portions engaging said hook means, and
(f) tension means bridging said legs beneath said top member and to maintain said bail means in said hook means.

9. An article of furniture according to claim **8** in which the tension means comprises a plate member.

10. An article of furniture according to claim **8** in which the supports each include an additional spacing means adjacent the lower ends of said legs.

11. An article of furniture according to claim **10** in which the tension means includes a tray member having hook means in engagement with said additional spacing means.

12. A knock-down article of furniture comprising:
(a) a top member,
(b) a pair of substantially parallel transversely spaced channel members secured to the lower surface of said top member,
(c) said channel members having side walls provided with transversely aligned notches adjacent each end and terminating in upwardly projected hook portions,
(d) a support member at each end of said channel members,
(e) each support member comprising a pair of legs having a transverse cross member connecting their upper ends and having bearing engagement in said aligned notches,
(f) bail means pivotally connected to said legs having bight portions engaging said hook portions, and
(g) tension means bridging said legs adjacent their lower ends to retain said cross members in said notches and said bail means in said hook portions.

13. A knock-down articles of furniture according to claim **12** in which each support member has a second cross member adjacent the lower ends of said legs.

14. A knock-down article of furniture according to claim **13** in which the tension means comprises a plate member connected to said second cross members.

15. A knock-down article of furniture according to claim **14** wherein said plate member includes notched corners for interlocking with said legs.

16. A knock-down article of furniture according to claim **12** wherein said tension means includes notched hook means engaging said legs.

17. An article of furniture comprising:
(a) a top member,
(b) a pair of supports for said top member, each support including a pair of tubular legs each having a hole in the wall thereof adjacent its lower end,
(c) notch and pivoted link means to attach the upper ends of said supports to said top member, and
(d) tensioning means for said supports, said tensioning means including a rod extending between each leg of said pair of legs and having hooked end portions disposed in the holes in said legs and means extending between said rods for holding said supports together.

18. An article of furniture according to claim **17** wherein said rod means includes notch means in said hooked ends to apply tension to said legs and retain said rod ends in the holes in said legs.

19. An article of furniture according to claim **17** wherein said tensioning means extending between said rods comprises a shelf having hooked ends engaging said rods.

20. An article of furniture according to claim **19** wherein said shelf has transverse slots therein, and a book end means engageable in at least one of said slots.

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FRANK B. SHERRY, *Primary Examiner.*

JAMES T. McCALL, *Examiner.*