Aug. 30, 1966 C. O. LARSON 3,269,487

SAW HORSE STRUCTURE

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Fig. 1.

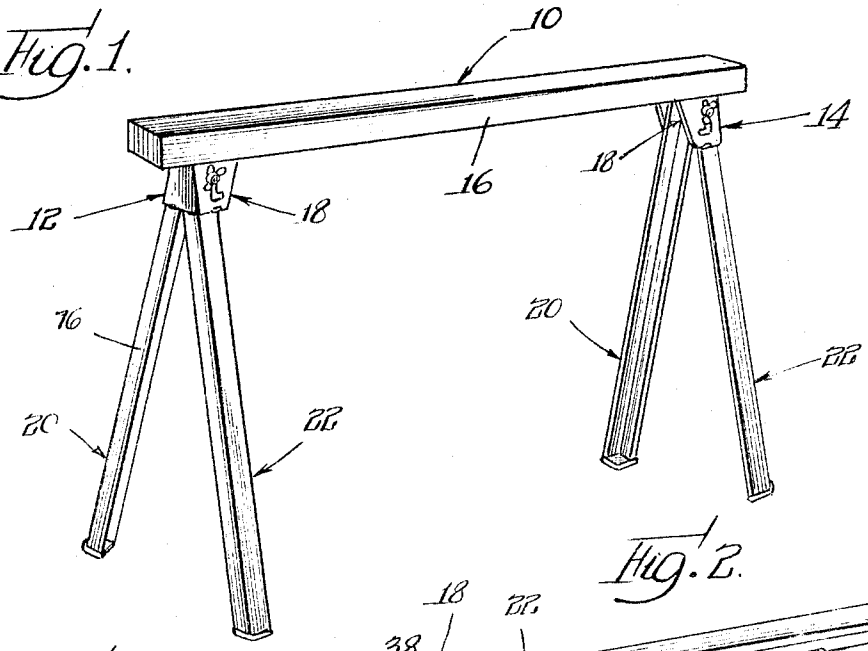


Fig. 2.

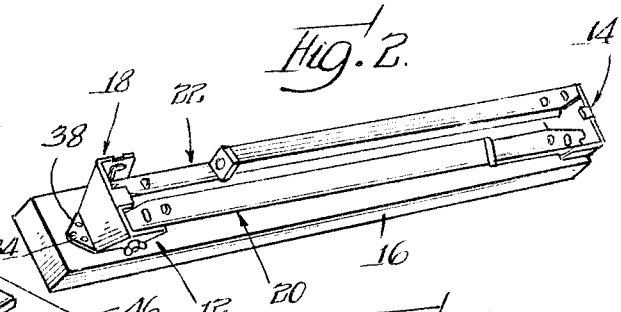


Fig. 3

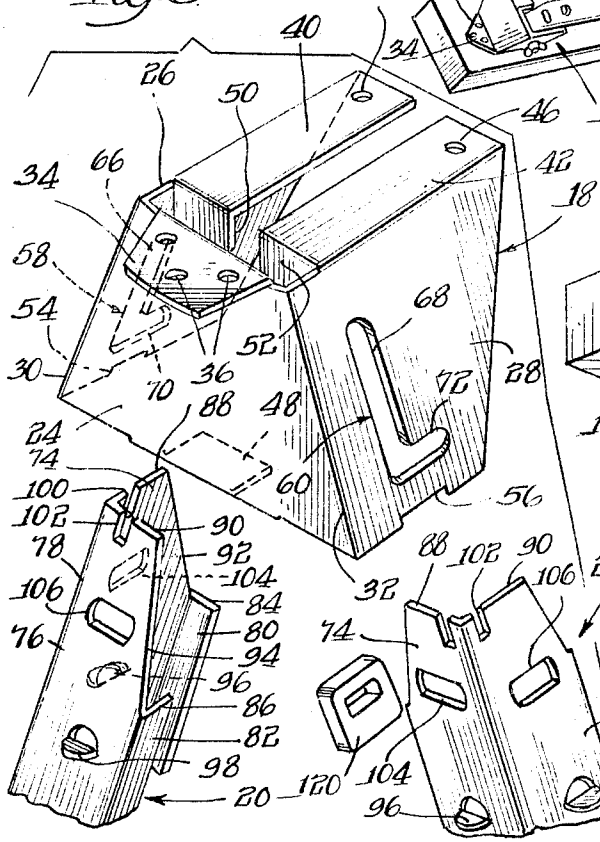
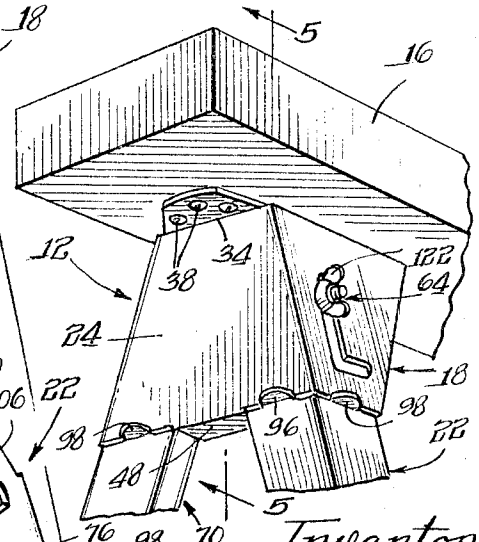


Fig. 4.



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SAW HORSE STRUCTURE

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Fig. 5.

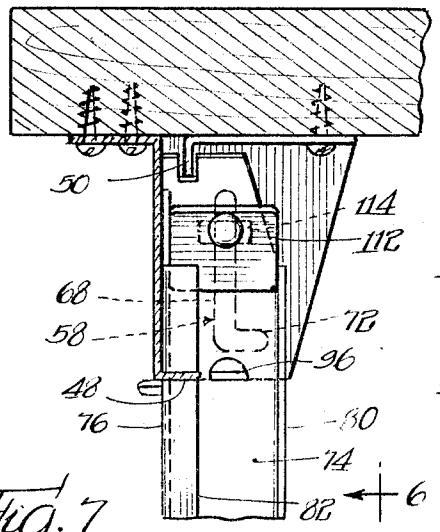


Fig. 6.

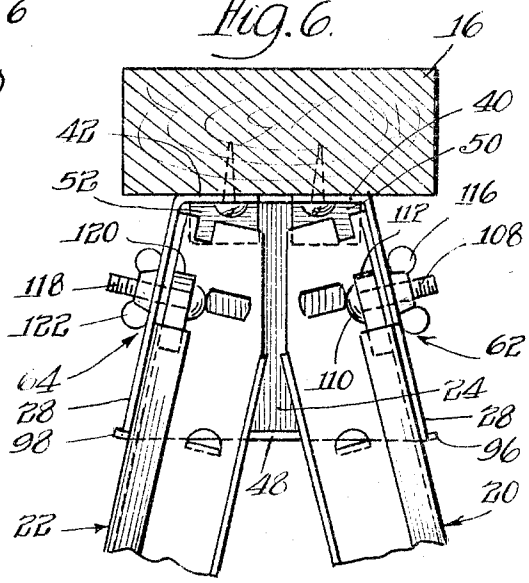


Fig. 7.

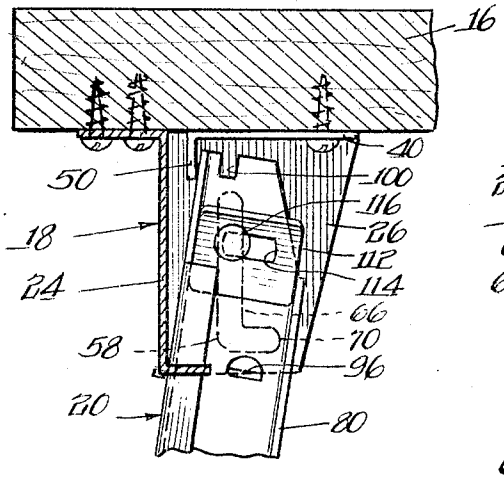


Fig. 8.

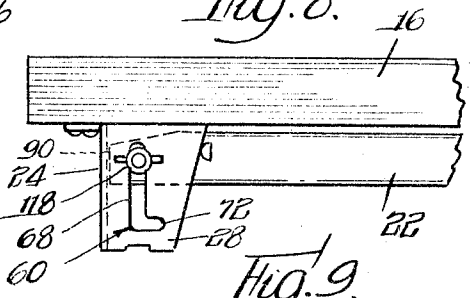
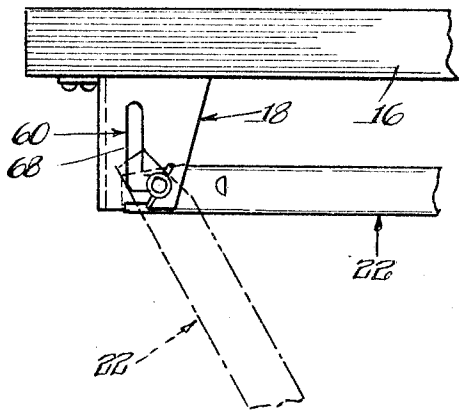


Fig. 9.



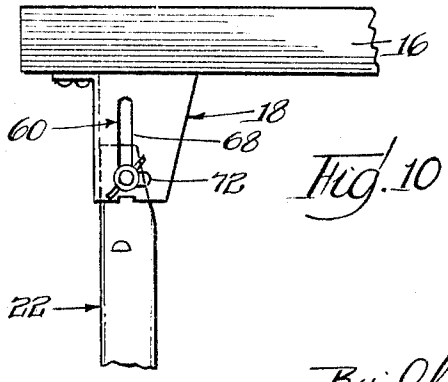


Fig. 10

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3,269,487

SAW HORSE STRUCTURE

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Filed Nov. 9, 1964, Ser. No. 409,817
8 Claims. (Cl. 182—155)

The present invention relates to a novel support structure, and more specifically to a novel saw horse.

An important object of the present invention is to provide a novel ready-made support structure such as a saw horse having legs which are securely and rigidly supported in extended positions and which may be easily folded to collapsed positions for shipping and storing purposes.

A more specific object of the present invention is to provide a novel bracket and foldable leg structure constructed for firmly and rigidly supporting a leg in an opened or extended position while enabling the leg to be easily manipulated to a folded or collapsible position.

A still further specific object of the present invention is to provide a novel bracket and leg structure whereby a leg is mechanically interlocked with the bracket at a plurality of points for rugged and sturdy support in an extended position and whereby the leg may be readily released with respect to the bracket and shifted to a folded position.

Another object of the present invention is to provide a novel bracket and leg structure of the above-described type which is adapted to permit the leg to be supported selectively in one or a plurality of possible extended or opened positions.

Still another object of the present invention is to provide a novel support structure of the above-described type which is of relatively rugged and economical construction.

Other objects and advantages of the present invention will become apparent from the following description and the accompanying drawings wherein:

FIG. 1 is a perspective view of a support structure or saw horse incorporating features of the present invention with legs thereof at an opened or extended position;

FIG. 2 is a perspective view of the structure shown in FIG. 1 with the leg members in a folded or collapsible position;

FIG. 3 is an exploded fragmentary perspective view showing elements of a bracket and leg subassembly of the support structure shown in FIGS. 1 and 2;

FIG. 4 is an enlarged fragmentary perspective view showing a portion of the support structure;

FIG. 5 is a fragmentary sectional view taken generally along line 5—5 in FIG. 4;

FIG. 6 is a fragmentary sectional view taken along line 6—6 in FIG. 5;

FIG. 7 is a sectional view similar to FIG. 5, but shows the leg member in an open position different from the open position shown in FIG. 5; and

FIGS. 8, 9 and 10 are fragmentary views showing the manner in which a leg member of the support structure of the present invention may be shifted between folded or collapsed and opened or extended positions.

Referring now more specifically to the drawings where-ing like parts are designated by the same numerals throughout the various figures, a support structure or saw horse 10 incorporating features of the present invention is shown in FIGS. 1 and 2. The structure 10 comprises leg and bracket subassemblies 12 and 14 secured to the under side of a transverse member 16. The bracket and leg subassemblies are identical to each other but are oppositely disposed. Thus identical reference numerals have been applied to corresponding elements of the subassemblies 12 and 14, but only the subassembly 12 will be described in detail below. As shown in FIG. 1, the leg members of the subassemblies 12 and 14 are adapted to be located in extended or opened positions for supporting the transverse member 16 and the leg members are also adapted to be folded to a collapsed position shown in FIG. 2 for storage or shipping purposes.

The bracket and leg subassembly 12 comprises a bracket 18 which, as shown best in FIG. 3, is preferably formed in one piece from sheet metal. The subassembly also includes a pair of identical but oppositely disposed legs 20 and 22 connected with the bracket 18 in the manner described in detail below.

The bracket 18 comprises an end wall 24 which is vertically disposed and which joins oppositely inclined side sections or walls 26 and 28 along inclined edges 30 and 32. A flange 34 extends laterally outwardly from an upper edge of the end wall 24 and is provided with a plurality of apertures 36 for receiving screws or other suitable fasteners 38 which serve to connect the bracket with the transverse member 16. Additional flanges 40 and 42 extend inwardly in opposing relationship from upper edges of the opposite sides 26 and 28 for engagement beneath the member 16. These flanges also have apertures 44 and 46 therein through which screws may be inserted for further securing the bracket to the member 16.

The leg members 20 and 22 are adapted to fit within the corners defined between the end wall 26 and the side walls 26 and 28 as will be described more in detail below. A tab 48 extends inwardly from a central portion of the lower margin of the end wall 24 for aiding in retaining the leg members in a desired opened or extended position and additional tabs 50 and 52 extend downwardly from ends of the flanges 40 and 42 adjacent to but spaced from the end wall 24 for further engaging and retaining the leg members as will be described in detail below. Furthermore, notches 54 and 56 are formed in lower edges of the side walls 26 and 28 for interengaging with elements on the leg members and generally L-shaped slots 58 and 60 are formed in the side walls 26 and 28 for accommodating leg securing of fastening means 62 and 64 as shown best in FIGS. 5 through 10. The L-shaped slots respectively include vertically extending portions 66 and 68 and horizontally extending lower end portions 70 and 72.

The leg member 20 is preferably formed from sheet metal stock and comprises elongated side sections 74 and 76 disposed at the same angle with respect to each other as the angle between the end wall 24 and the side wall 26 of the bracket. In the embodiment shown this angle is substantially 90 degrees. Preferably, the leg side sections 74 and 76 which are integrally joined along line 78 have opposite edges merging with inturned flanges 80 and 82. Upper ends 84 and 86 of the flanges 80 and 82 terminate well below upper ends 88 and 90 of the side sections 74 and 76 and the side sections are beveled along lines 92 and 94 from the ends of the flanges to the ends 88 and 90. This construction provides for a clearance between upper end portions of adjacent leg members when the leg members are positioned as shown in FIG. 6.

Tabs 96 and 98 are struck from the leg side sections 74 and 76 and project laterally outwardly therefrom at a predetermined distance below the upper edges 88 and 90 thereof. When the leg 20 is positioned relative to the bracket 18 as shown in FIG. 3, the tab 96 is adapted to interlock with the edges of the notch 54 when the leg is in the fully assembled and extended position shown in FIG. 5.

Vertically extending notches or slots 100 and 102 are formed in the upper edges 88 and 90 of the leg side sections 74 and 76. When the leg member 20 is oriented relative to the bracket as shown in FIG. 3 and is in the fully assembled position shown in FIG. 5, the notch 100 is adapted to receive and interlock with the depending flange 50 of the bracket.

Transversely elongated openings or slots **104** and **106** are formed in the leg side sections **74** and **76** for selectively accommodating the leg securing or fastening means. When the leg **20** is in the position shown in FIGS. 3–6, the slot **104** is utilized for accommodating the fastening means **62**.

The leg member **22** is identical to but oppositely disposed with respect to the leg member **20**. In other words, the two leg members are interchangeable and therefore identical reference numerals have been applied to corresponding elements of the leg members. As indicated above, when the leg member **20** is in the position shown in FIGS. 3–6 the tab **96** engages within the notch **54**, the slot **100** cooperates with the depending flange **50** and the securing means **62** extends through the slot **104**. However, when the leg member is in the position of leg member **22** at the opposite side of the bracket **13**, the tab **98** engages within the slot **56**, the slot **102** receives the flange **52** and the slot **106** accommodates the securing means **64**. Furthermore, it is to be noted that the tab **48** at the lower margin of the end wall **24** is positioned for engaging adjacent flanges of the leg members as shown in FIG. 6 and retaining the leg members outwardly against the sides **26** and **28** of the bracket.

The fastening means **62** comprises a bolt **108** having an enlarged head **110**. The bolt **108** extends through a block **112** which, as shown in FIG. 5, extends between and engages the side section **76** and the flange **80** of the leg member **20** so that the block is slidable longitudinally of the leg member but is held against rotation between the section **76** and the flange **80**. The block **112** also has an elongated transverse aperture **114** corresponding in width and length to the slot or aperture **104** in the leg side section **74**. The bolt extends through the apertures **104** and **114** and a wing nut **116** is applied to the outer end of the bolt. The securing means **64** is identical to the securing means **62** and includes a bolt **118**, a slide block **120** and a wing nut **122**.

When the leg members **20** and **22** are in the fully opened and extended position shown in FIGS. 1 and 4–6 it is seen that the upper portions of the leg are retained flush against the end wall **24** and respectively against the side walls **26** and **28**. Thus the legs are disposed in a substantially vertical plane and are inclined oppositely from each other within the plane so that lower ends thereof are spaced apart for providing the structure with a relatively broad stable base. Furthermore, in this position the lug and notch elements on the legs engage with the notches **54** and **56** and flanges **50** and **52** of the bracket and the legs also engage with the tab **48** of the bracket whereby the legs are restrained against twisting relative to the bracket and against from moving away from the end wall or side walls of the brackets. The legs are, of course, secured against longitudinal movement by tightening the wing nuts **116** and **122**.

In certain instances it may be desirable to have the legs **20** and **22** arranged in a plane inclined relative to the transverse member **16** rather than perpendicular thereto as sown in FIG. 7. When this arrangement is desired, the wing nuts are loosened and the leg members are shifted downwardly sufficiently to disengage the upper ends thereof from the flanges **50** and **52** whereupon the legs are tilted and raised so that the upper ends thereof engage the sides of the flanges **50** and **52** opposite from the end wall **24** as shown in FIG. 7. The legs are then secured in position by retightening the wing nut. It is seen that the transverse slots in the blocks **112** and **120** permit the legs to be tilted in this manner.

In order to shift the legs between the opened position shown in FIG. 1 and the closed position shown in FIG. 2, it is necessary to manipulate the legs in a manner shown in FIGS. 8, 9 and 10. For example, starting with the leg **22** in the folded or collapsed position as shown in FIG. 8, it is seen that the leg is locked against pivotal movement toward the extended position since the bolt **18** is

in the upstanding leg portion **68** of the L-shaped slot **60** and since the spacing between the aperture **106** in the leg member which receives the bolt and the upper end edge **90** of the leg member is approximately equal to the spacing between the slot **68** and the end wall **24** of the bracket. In other words, with the parts in the position shown in FIG. 8, the end edge **90** of the leg **22** substantially abuts the inner surface of the bracket end wall **24** so that the leg is prevented from pivoting or swinging toward its extended position. Of course, all of the remaining legs are similarly locked in the folded or collapsible position.

In order to move the leg **22** from the folded position shown in FIG. 8, the wing nut **122** is loosened so as to enable the bolt **118** to slide down the slot **68** into the lower end portion **72** of the L-shaped slot. Then the leg member **22** may be shifted toward the right as shown in solid lines in FIG. 9 a distance sufficient to permit the end **90** to clear the end wall **24** of the bracket. This enables the leg to be pivoted through the dotted line position shown in FIG. 9 to the upstanding position shown in FIG. 10. Then the leg is shifted sufficiently to move the bolt **118** from the extreme end of the lower slot portion **72** into alignment with the upstanding slot portion **68** as shown in FIG. 10 whereupon the leg may be shifted vertically to either the position shown in FIG. 5 or the position shown in FIG. 7. When the leg is in a desired position, the wing nut **122** is tightened as mentioned above. Of course, when it is desired to shift the leg from the fully extended position to the closed position the aforementioned steps are reversed.

While a preferred embodiment of the present invention has been shown and described herein, it is obvious that many structural details may be changed without departing from the spirit and scope of the appended claims.

The invention is claimed as follows:

1. A support structure of the type described comprising a generally horizontally extending transverse member, first and second brackets secured to an under side of said member adjacent opposite ends thereof, and first and second pairs of first and second legs respectively connected to said brackets, each of said brackets including an end wall disposed transversely with respect to and depending from said member, each of said brackets including first and second opposite side walls extending from opposite and generally upstanding end edges of said end wall, said end edges and said side walls being oppositely inclined downwardly and outwardly from said transverse member, said side walls and the adjacent end walls providing corners defining a predetermined angle, said legs respectively having upper end portions disposed in said corners and against said side walls so that first and second legs of each of said pairs are inclined downwardly and outwardly away from each other, releasably interlocking tab and notch means between lower margins of said side walls and said legs for restraining the legs against shifting relative to the brackets, each of said brackets including elements extending between upper portions of said side walls and spaced from said end wall, said elements engaging and releasably restraining upper ends of said legs, said brackets including tab means projecting inwardly from lower portions of said end walls for engaging between the legs of said pairs, generally L-shaped slot means in each of said side walls, said slot means including upstanding portions extending along and spaced a predetermined distance from adjacent inclined end edges of said end walls, said slot means having lower end portions extending away from said adjacent edges, and releasable fastening means extending through said slot means and connected to said legs at locations spaced below upper terminal ends of the legs distances substantially equal to said predetermined distance whereby, upon loosening of said fastening means, said legs may be shifted between the aforesaid downwardly and outwardly extending inclined positions and folded positions by manipulating the legs to shift said fastening

means between said upstanding and lower end portions of the slot means.

2. In a support structure of the type described, a bracket including an end wall and a side wall extending at an angle from said end wall, slot means in said side wall, said slot means having an upstanding portion spaced a predetermined distance from said end wall and a lower end portion extending away from said end wall, a leg member including an upper end portion extending along said side wall and said end wall, and releasable fastening means extending through said slot means and connected to said leg member a distance from an upper terminal end of said leg member similar to said predetermined distance, said leg member being shiftable between an extended position and a folded position in which said terminal end substantially abuts said end wall by loosening the securing means and manipulating the leg member for shifting the securing means between said upstanding and lower end portions of the slot means.

3. A support structure, as defined in claim 2, wherein said bracket includes an element extending from an upper portion of said side wall and spaced from said end wall, said element being engageable with an upper end margin of said leg selectively for retaining the leg against said end wall and in a position inclined with respect to and spaced from said end wall.

4. A support structure, as defined in claim 2, which includes interlocking tab and notch means between a lower margin of said side wall and said leg for releasably retaining said leg against pivotal movement relative to said bracket.

5. A support structure, as defined in claim 2, which includes a tab extending from said end wall and spaced from said side wall for engaging and retaining said leg oppositely from said side wall.

6. In a support structure of the type described, a one-piece sheet material bracket comprising a generally upstanding end wall having generally upstanding opposite end edges which are oppositely and downwardly and laterally outwardly inclined with respect to each other, opposite side walls respectively and integrally joined to said opposite end edges and extending at angles from said end wall and cooperating with said end wall in defining opposite corners for receiving upper portions of leg members, generally L-shaped slot means in said opposite side walls, each of said slot means including an elongated upstanding portion extending generally parallel to and spaced a predetermined distance from an adjacent end edge and a lower end portion extending way from said adjacent end edge, generally horizontally extending inturned flanges projecting from upper margins of said opposite side walls, and tabs extending downwardly from said flanges adjacent to and spaced from said end wall for engaging upper ends of legs assembled with the bracket and selectively in different positions respectively against the end wall and spaced from and inclined relative to the end wall.

7. A bracket as defined in claim 6, which includes a tab extending from a lower margin of said end wall generally midway between said side walls for engaging between legs oppositely from the side walls when the legs are assembled with the bracket.

8. A bracket, as defined in claim 7, which includes notch means in lower margins of said side walls cooperably engageable with tabs projecting from legs when the legs are fully assembled with the bracket.

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