March 22, 1966 R. M. BOND ETAL 3,241,633

COLLAPSIBLE SAWHORSE AND TABLE TOP THEREFOR

Filed April 6, 1964

FIG. 1

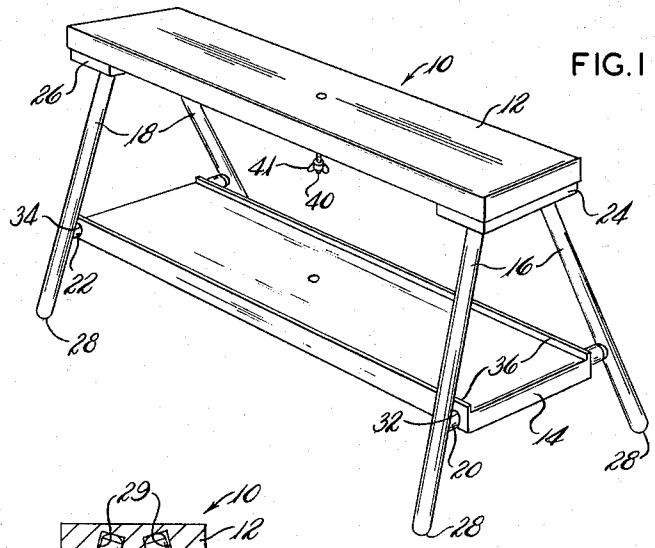


FIG. 7

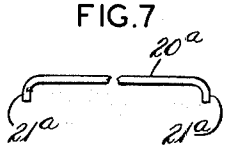


FIG. 8

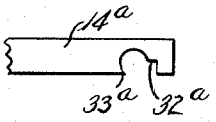


FIG. 2

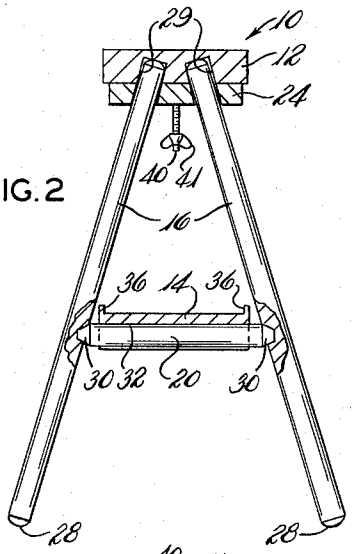


FIG. 5

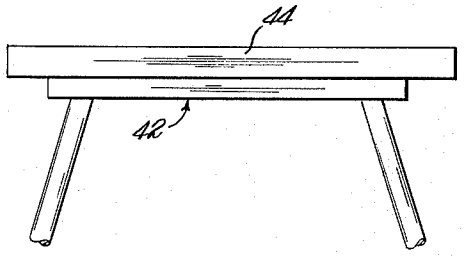
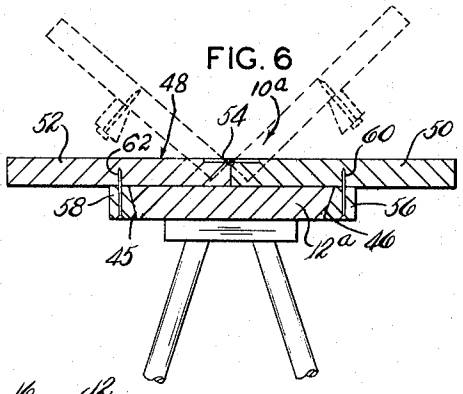


FIG. 6



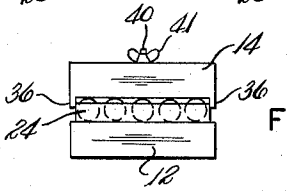


FIG. 3

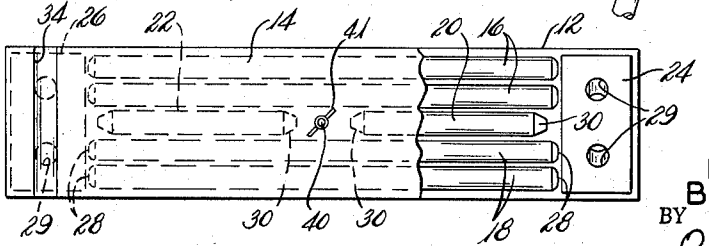


FIG. 4

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COLLAPSIBLE SAWHORSE AND TABLE TOP THEREFOR

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This invention relates to a collapsible sawhorse and table top therefor, and more particularly to a wooden sawhorse which is made collapsible, or readily disassembleable, from interlocking wooden pieces which is adaptable to receive and support a table top in interlocked relationship therewith, or to a table that can be readily assembled or disassembled.

Heretofore, it is well known that there have been many and various types of sawhorses provided that are adaptable for carpenter and construction usage. However, all these sawhorses generally have been of a fixed or permanent construction to be sturdy enough to withstand heavy usage. Further, usually they have not been collapsible thereby causing great difficulties in transportation to and from construction and building sites. Also, heretofore it has been known to hinge a table top and utilize clamping blocks to clamp down over the sides of a supporting sawhorse. However, this construction does not provide a positive clamp to increase stability. Thus, the structure is not durable enough to withstand heavy loads and strains and stresses in various directions.

Therefore, it is the general object of the present invention to avoid and overcome the foregoing and other difficulties of prior art practices by the provisions of a collapsible sawhorse made from wooden parts which interfit together to achieve an extremely rigid and durable sawhorse which is adaptable for heavy strains and stresses in any direction, and which is extremely simple and inexpensive to manufacture.

A further object of the invention is to provide a sawhorse having removable legs slidably received in slightly oversized holes in a top member and which legs are tensioned in a lateral and a longitudinal direction to securely fix them in the slightly oversized holes and provide great rigidity and durability to the resultant sawhorse.

A further object of the invention is to provide a table top comprising two portions hinged together with tapered blocks secured parallel and adjacent to the hinges which are adapted to clamp in interlocking relation onto complementary surfaces on the top of a supporting sawhorse to provide a secure and durable combination of the top and the sawhorse without utilizing any external securing means.

A further object of the invention is to provide a collapsible sawhorse, or table, wherein all the parts can be readily secured together in a compact packaged assembly to greatly enhance storage or transportation thereof.

The aforesaid objects of the invention and other objects which will become apparent as the description proceeds are achieved by providing in a sawhorse, or table, the combination of a top member, a pair of legs slidably received in and extending outwardly and downwardly from each end of the top member, means to tension the extended portions of each leg of each pair of legs in a lateral direction, and means to tension the extended portions of each pair of legs longitudinally in relation to each other. In another table of the invention, it includes the combination of a sawhorse having a top member with a downwardly and inwardly directed bevel on each side along the longitudinal length thereof, a table top split into two equal halves, hinge means pivotally hinging the split halves of the table top together, and wedge means extending longitudinally in parallel spaced relation on each side

of the hinge means operatively affixed to the bottom side of the table top and having upwardly and outwardly beveled opposed edges adapted to be complementary with and clamp in interlocked relation onto the beveled sides of the top member when the halves of the table top are folded down to lie in the same plane.

For a better understanding of the invention reference should be had to the accompanying drawings wherein:

FIGURE 1 is an assembled perspective view of the sawhorse illustrating one embodiment of the invention;

FIGURE 2 is an end elevation in partial section of the sawhorse of FIGURE 1 illustrating the relationship of the legs to the top member and the lateral spreading and tensioning of the legs achieved by the bottom spreading bar;

FIGURE 3 is an end elevation of the sawhorse of FIGURE 1 in the disassembled condition showing how it forms a compact package assembly;

FIGURE 4 is a plan view of the packaged assembly of FIGURE 3 with the bottom tray partially broken away to clearly show the relationship of the legs and the angled relationship of the holes for receiving the legs;

FIGURE 5 is a partially broken away end elevation of a typical table top combination with a support structure similar to the sawhorse of FIGURE 1;

FIGURE 6 is a partially broken away partially sectioned end elevational view of a table top employing the embodiments of the invention mounted upon an adaptation of the sawhorse of FIGURE 1;

FIGURE 7 is a broken away elevational view of a supporting brace which may be used to pull the ends of the legs together to achieve the wedging desired; and

FIGURE 8 is a broken away side elevational view of a groove in the bottom tray which has been undercut to improve the locking action between the bottom tray and the supporting braces.

While the sawhorse, or table, of the invention may be particularly adaptable for use as a step stool or in various other sizes for other uses, or in combination with the table top for a picnic table, it is particularly adaptable for use as a sawhorse in carpentry and construction work where the collapsible feature allows a great number of these to be transported in the rear of a pickup truck, and where the table top can be securely mounted thereon and easily broken down therefrom, and hence it has been so illustrated and will be so described.

With reference to the form of the invention illustrated in FIGURE 1 of the drawings, the numeral **10** indicates generally a sawhorse comprising a top member **12**, a bottom tray **14**, leg pairs **16** and **18**, operatively supporting the top member **12** at either end thereof, and supporting braces, or rods, **20** and **22** extend between the leg pairs **16** and **18** respectively. A pair of supporting blocks **24** and **26**, respectively, are operatively secured to each end of the top member **12** to prevent splintering of the ends and to receive the leg pairs **16** and **18** as will be more fully described hereinafter. The invention contemplates that the supporting blocks **24** and **26** will usually be made from laminated plywood hardwood and will be securely glued, or otherwise secured to the top member which will generally be a piece of pine or other similar softer wood. The plywood supporting blocks **24** and **26** will be harder and more durable than the top member **12**.

For a better understanding of the relationship between the leg pairs **16** and **18** and the top member **12**, reference should be had to FIGURE 2 wherein it is shown in cross-section that the top member **12** and support block **24** contain holes **29** which are equally spaced laterally from the longitudinal center line of the top member **12**, but which are angularly directed towards each other as they are cut through the block **24** and extend into the top

member 12. Thus, the holes 29, generally round, are adapted to slidably receive the cylindrically shaped legs 16. Holes of different shape would be used to accommodate legs of different cross-sectional shape. As a feature of the invention, the holes 29 are purposely drilled slightly oversize so that the ends of the legs 16 easily slide thereinto. The bottom ends 28 of the legs 16 are rounded to adjust to any surface where they may be placed.

In order to hold the legs 16 in position after they have been slidably received in the holes 29, the invention first contemplates that the spreading rod 20 will spread the bottom ends 28 of the legs 16 apart so as to achieve a lateral tensioning thereon to wedge the ends received in the holes 29. The rod 20, which may be made of metal or wood, has tapered ends 30 which are received in complementary holes in the sides of the legs 16, as indicated in the sectioned portion of FIGURE 2. The construction of the legs 16 and the rod 20 is such that it will lie in a plane essentially parallel to the top member 12 and to increase leverage generally nearer the ends 28 of the legs 16 than to the top member 12. A second tensioning is given to the legs 16 and 18 by means of the bottom tray 14 which further insures a complete wedging action of the legs into their respective holes. To this end, the tray 14 contains notched portions 32 and 34 which are adapted to slide more than halfway down over the substantially cylindrically shaped spreading bars 20 and 22. The length of the bottom tray 14 is carefully determined to be either greater than or less than the normal longitudinal width between the leg pairs 16 and 18. Thus, if the length is greater, the leg pairs 16 and 18 are spread longitudinally away from each other to effect a longitudinal tensioning between the leg pairs 16 and 18 to further wedge the legs into their respective holes. Conversely, if the bottom tray 14 is shorter, the leg pairs 16 and 18 will be pulled towards each other to effect the longitudinal tensioning and further wedge the leg pairs into their respective holes.

Thus, it is seen that the extended end of each leg individually is moved a distance laterally and a distance longitudinally with respect to the top member 12 by means of the spreading bars 20 or 22 and the bottom tray 14 to insure a two-way wedging of the end of the leg received into the angled hole through the support block and the top member 12. With this simple two-way tensioning firmly wedges the ends of the legs loosely received in the angled holes through the supporting blocks 24 and 26 and the top member 12. A terrific amount of support and stability is attained as the entire assembly becomes extremely rigid, stable, and completely durable. No loosening is achieved because the assembly tensions are constant. The hard wood of the plywood supporting blocks 24 and 26 insures that the holes therein will not become enlarged. Generally, the invention contemplates that the leg pairs 16 and 18 will be made from a hardwood dowel, or the like, so that they too will not become dented or sloppy in their fit after constant wedging action.

FIGURES 3 and 4 together illustrate how the components are assembled in packaged relationship when the legs are broken down. Particularly, it should be noted that the bottom tray 14 has side edges 36 which are adapted to hold tools in place on the bottom tray when the sawhorse 10 is in the assembled condition and which are adapted to slide over the slightly narrowed supporting blocks 24 and 26 when the sawhorse is packaged, as indicated in FIGURE 3. Note that the leg pairs 16 and 18 are of a convenient length to fit between the support blocks 24 and 26 on each side of a locking screw 40. The spreading bars 20 and 22 lie between the leg pairs 16 and 18 with the entire grouping being contained by the side flanges 36 of the bottom tray 14 and a wing-nut 41 received on the locking screw 40 to hold the top member 12 in adjacent relationship to the bottom tray 14 to complete the package. A convenient handle (not shown) could then be attached to facilitate carrying of the package. Thus, it is seen that a neat packaged assembly is provided, which can be readily assembled to a sturdy and extremely durable sawhorse without utilizing any parts, tools or outside assistance, but which is achieved merely by the tensioned, interlocking relationship between the legs, the spreader bars and the bottom tray.

FIGURE 5 illustrates a table top 44 supported by a frame 42 which is merely a widened form of the leg frame supporting structure for the sawhorse of FIGURES 1 and 2. This embodiment of the invention illustrates that it is suitable for a larger structure, such as a table, and that the same tensioned, interlocking relationship can be utilized for the frame 42.

FIGURE 6 illustrates a sawhorse 10*a* which is an adaptation of the sawhorse of FIGURE 1 wherein a top member 12*a* contains upwardly and outwardly beveled lateral sides 45 and 46. The remaining construction of the sawhorse 10*a* is similar to that described with reference to FIGURE 1 above. A table top, indicated generally by numeral 48, is split substantially into equal halves 50 and 52, respectively, which are pivotally mounted by means of a hinge 54. The hinge 54 permits the halves 50 and 52 to extend to a flat plane as indicated in FIGURE 6, yet allows them to pivot towards each other until they are substantially adjacent. In order to provide a clamping of the halves 50 and 52 of the table top 48 to the top member 12*a* of the sawhorse 10*a*, a pair of wedges 56 and 58, respectively, are operatively secured to their respective halves 50 and 52 by convenient means such as nails 60 and 62 to extend longitudinally and substantially parallel to the hinge 54 the width of the halves 50 and 52 and substantially equally spaced from the hinge 54. The wedges 56 and 58 are provided with opposed sides which are beveled upwardly and outwardly to engage in complementary interlocked relationship with the beveled surfaces 46 of the top member 12*a*, all as indicated in FIGURE 6, when the halves 50 and 52 are folded down so that they form an essentially flat top plane. The positioning of the wedges 56 and 58 is adapted in accordance with the width of the top member 12*a* so that a secure clamping with no play or sloppiness is achieved when the table top 48 is positioned as indicated in FIGURE 6. Thus, a secure table in combination with the sawhorse 10*a* is achieved without any outside parts or external forces being applied as the interlocked clamping action achieved by the wedges 56 and 58 as the halves 50 and 52 are folded down from the dotted line position onto the top member 12*a* insures an extremely stable and durable structural cooperation between the table top 48 and the sawhorse 10*a*. The clamping action achieved by the wedges 56 and 58 insures a non-sliding relation between the table top 48 and the sawhorse 10*a*.

FIGURE 7 illustrates a supporting brace 20*a* which has hooked ends 21*a* which could be adapted to be received in complementary holes in the legs of the sawhorse of FIGURE 1 to draw the ends of each pair of legs toward each other rather than spreading them apart. This will also wedge the ends of the legs in their respective holes.

FIGURE 8 illustrates a holding tray 14*a* which contains a slot 32*a* having an undercut portion 33*a* which will provide a better interlock with the supporting braces when the leg pairs are spread away from each other. An undercut on the opposite side would probably be utilized if it were desired to draw the leg pairs toward each other to achieve the wedging of the ends of the leg pairs.

Thus, it is seen that the objects of the invention have been achieved by a sawhorse which utilizes a two-way tensioning on removable legs and when disassembled forms a convenient package, which sawhorse can be adapted to receive a table top with an interlocking dovetail or clamping between wedges secured to the table top and the top member of the horse. Or, the structure of the invention may itself form a table.

While in accordance with the patent statutes only one

best known embodiment of the invention has been illustrated and described in detail, it is to be particularly understood that the invention is not limited thereto or thereby, but that the inventive scope is defined in the appended claims.

What is claimed is:

1. In a sawhorse the combination of,
a rectangularly shaped wooden top member,
a hardwood block means operatively affixed at each end on the bottom side of said wooden top member to prevent splitting of the ends thereof, each of said block means containing a pair of substantially vertically oppositely directed outwardly angled circular holes positioned in uniform lateral relation on either side of the longitudinal center line of said top member and extending through said block means into said top member,
a tubular leg means having one end thereof slidably received in loose fitting relation into each hole so that the outer ends all lie in a plane essentially parallel to the plane of the top member,
means to tension the extended portion of each leg means from each pair of holes laterally in relation to the top member, and
means to tension the extended portion of each leg means from each pair of holes longitudinally in relation to the top member to positively wedge in two directions the tubular ends of said leg means received in said holes.

2. In a sawhorse the combination of,
a rectangularly shaped top member, said top member containing a pair of substantially vertically oppositely directed outwardly angled holes positioned in uniform lateral relation on either side of the longitudinal center line of said top member and extending into but not through said top member,
leg means slidably received in loose fitting relation into each hole so that the outer ends all lie in a plane essentially parallel to the plane of the top member,
means to urge the extended portion of each leg means laterally in relation to the top member, and
means to urge the extended portion of each leg means longitudinally in relation to the top member to thereby positively wedge in two directions the loose fitting ends of the leg means received in the holes.

3. In a sawhorse, table or the like, the combination of,
a top member having at each end thereof a pair of oppositely directed outwardly angled holes,
a pair of legs slidably received in loose fitting relation thereinto and extending outwardly and downwardly from the pair of holes at each end of said top member,
means to apply a force to the extended portions of each leg of each pair of legs in a lateral direction in relation to the top member, and
tray means to apply a force to the extended portions of each pair of legs longitudinally in relation to the top member thereby wedging in two directions the legs slidably received in loose fitting relation into the top member.

4. In a table the combination of,
a sawhorse having a top member with a downwardly and inwardly directed bevel on each side along the longitudinal length thereof,
a table top split into two equal halves,
hinged means pivotally mounting the split halves of the table top together, and
wedge means extending longitudinally in parallel spaced relation on each side of said hinged means operatively affixed to the bottom side of said table top and having upwardly and outwardly beveled opposed edges adapted to be complementary with and clamp in non-sliding relation onto the beveled sides of said top member when said halves of said table top are folded down to lie in the same plane.

5. In a sawhorse, table, or the like, the combination of,
a top member having ends with a pair of oppositely directed outwardly angled holes through each end,
a pair of legs slidably received in loose fitting relation and extending outwardly and downwardly from the holes in each end of said top member,
spreader bar means removably interlocked between the extended portions of each pair of legs to apply a force to the extended portions of each pair of legs in a lateral direction in relation to the top member to wedge the leges in a lateral direction relative to their slidable reception into the top member, and
holder tray means removably interlocked with the spreader bar means to apply a force to the extended portions of each pair of legs longitudinally in relation to the top member to wedge the legs in a longitudinal direction relative to their slidable reception into the top member.

6. In combination
a sawhorse comprising
a longitudinally shaped top member with a downwardly and inwardly directed bevel on each side along the longitudinal length thereof,
a pair of legs slidably received into and extending outwardly and downwardly from each end of said top member,
spreader bar means removably interlocking the extended portions of each leg of each pair of legs to apply a force to the extended portions of each leg in a lateral direction in relation to the top member, and
holding tray means removably interlocking with the spreader bar means to apply a force to the extended portions of each pair of legs longitudinally in relation to the top member,
a table top split into two equal halves, hinge means pivotally mounting the split halves of the table top together, and
wedge means extending longitudinally in parallel spaced relation on each side of said hinge means operatively affixed to the bottom side of said table top and having upwardly and outwardly beveled opposed edges complementary with and clamping in non-sliding interlocking relation on the beveled sides of said top member when said halves of said table top are folded down to lie in the same flat plane.

7. In a collapsible sawhorse the combination of,
a rectangularly shaped top member,
a block means operatively affixed at each end on the bottom side of said top member,
a pair of legs slidably received into holes at each end of said top member and extending outwardly and downwardly from said top member, said legs having a length less than the length of said top member and a combined width of less than the width of said top member,
spreader bar means removably interlocked between the extended portions of each leg of each pair of legs to apply force to the extended portions of each leg in a lateral direction with relation to said top member,
holding tray means removably interlocked with said spreader bar means to apply a force to the extended portions of each pair of legs longitudinally in relation to the top member, said holding tray means being substantially the same size and shape as said top member with longitudinally extending raised flange portions on the lateral sides thereof, and
means to secure the holding tray means in substantially parallel fixed relation to the top member when said sawhorse is in a disassembled condition so that the legs and spreader bar means are positioned between said holding tray means and said top member and held in position by a box-like receptacle formed by raised lateral flanges on said holding tray means, and the blocks on the bottom side end of the top member.

8. In a sawhorse, table, or the like, the combination of,

a rectangularly shaped top member, said top member containing a pair of substantially vertically oppositely directed outwardly angled circular holes positioned in uniform lateral relation on either side of the longitudinal center line of said top member and extending into but not through said top member,

laminated block means glued to each end of said top member and having said holes extending therethrough to reenforce said top member and prevent splitting of the ends thereof,

tubular leg means slidably received with considerable play into each hole so that the outer ends all lie in a plane essentially parallel to the plane of the top member,

means to urge the extended portion of each leg means laterally in relation to the top member, and

means to urge the extended portion of each leg means longitudinally in relation to the top member to achieve a double wedging action to positively hold the legs in place relative to the holes.

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