Dec. 25, 1962 T. G. BAASLAND 3,070,138

FOLDABLE WORK-BENCH

Filed June 12, 1961 2 Sheets-Sheet 1

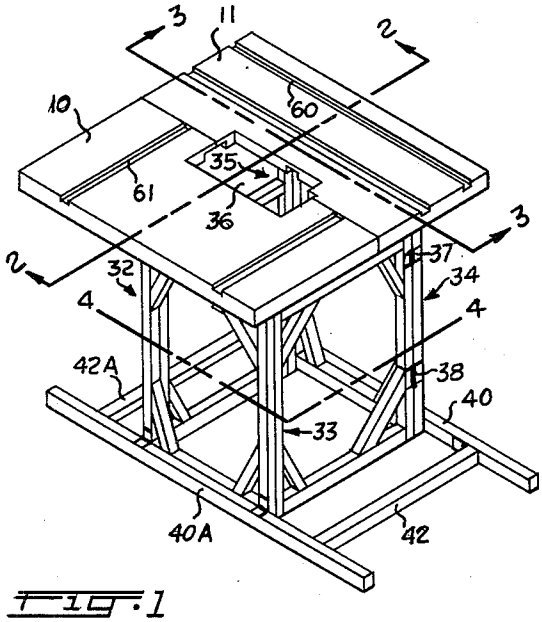


FIG. 1

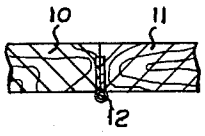


FIG. 6

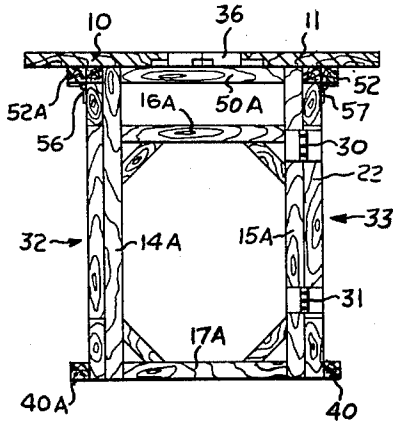


FIG. 2

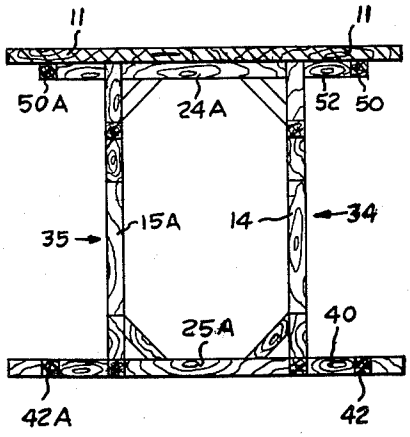


FIG. 3

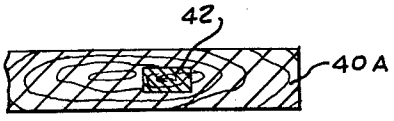


FIG. 7

INVENTOR.
TORJUS G. BAASLAND
BY W. E. Sherwood
Attorney

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FOLDABLE WORK-BENCH

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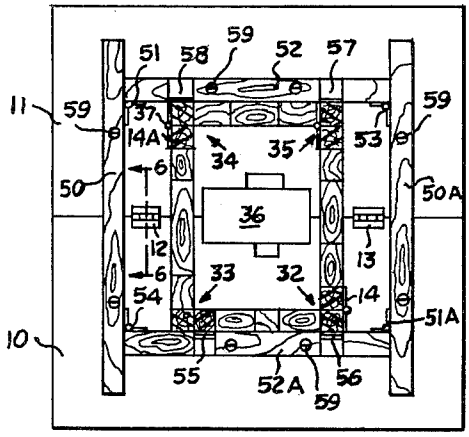


FIG. 4

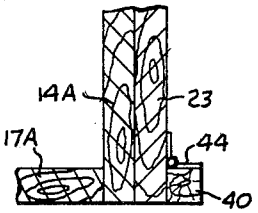


FIG. 8

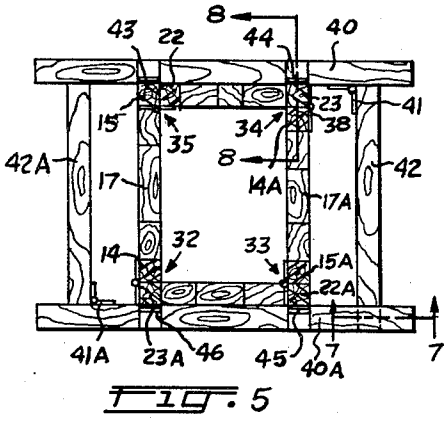


FIG. 5

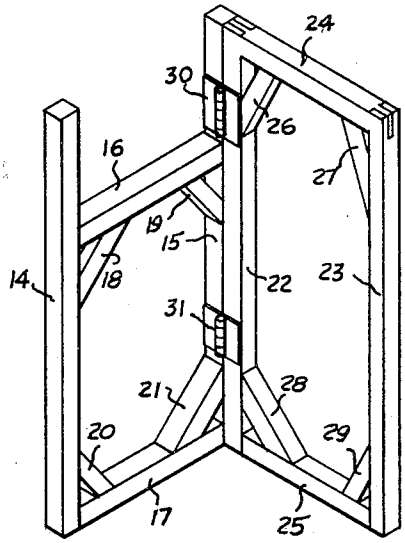


FIG. 9

INVENTOR.
TORJUS G. BAASLAND
BY W. E. Sherwood
Attorney

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FOLDABLE WORK-BENCH

Torjus G. Baasland, Lexington, Ky.
(755 E. 52nd St., Brooklyn 3, N.Y.)

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3 Claims. (Cl. 144—286)

This invention relates to work-benches, or the like, which may be readily assembled or disassembled, and which, when disassembled may be folded into a compact space.

Various structures of this type have been proposed but, so far as I am aware, have embodied certain limitations which it is a purpose of my invention to overcome. For example, in the field of carpentry a need has long existed for a work-bench which can be packaged in a portable box; carried in an automobile to the work site; carried through narrow spaces, as between joists of a building; assembled at the work site in a matter of minutes; embody a large work surface at an appropriate height and on which a plurality of operations may be conducted; and have a sturdy construction which will resist compression, twisting and tipping stresses.

An object of the invention is to provide a work-bench or the like characterized by its ability to satisfy each of the above-listed requirements.

Another object is to provide a work-bench or the like in which the supporting structure may comprise pairs of structural elements interchangeable with each other and contributing to ease of assembly and reduction in cost of manufacture.

Other objects and advantages of the invention will become apparent as the description proceeds and when considered in conjunction with the accompanying drawings in which:

FIG. 1 is a perspective view of the assembled work-bench prior to attachment of work tools thereto;

FIG. 2 is a sectional view taken on line 2—2 of FIG. 1 and showing the structure to a larger scale;

FIG. 3 is a sectional view taken on line 3—3 of FIG. 1;

FIG. 4 is a view of the underside of the top member taken from the plane indicated at 4—4 in FIG. 1 as viewed upwardly;

FIG. 5 is a view of the base portion of the structure taken from the plane indicated at 4—4 in FIG. 1 as viewed downwardly;

FIG. 6 is a sectional view of a detail taken on line 6—6 of FIG. 4;

FIG. 7 is a sectional view of a detail taken on line 7—7 of FIG. 5;

FIG. 8 is a sectional view of a detail taken on line 8—8 of FIG. 5; and

FIG. 9 is a perspective view of an upright in expanded position and to a larger scale.

In accordance with the invention there is provided a two-panel top member hingedly secured together and forming the largest single unit requiring storage. This top member, when stowed, occupies twice the thickness, one-half the width, and the same length as it does when unfolded for use. Preferably, the length of the top member panel represents the largest dimension of any part of the structure and the width of the panel is at least as great as the width of the frameworks. Four vertical posts, each comprising two legs arranged side-by-side, provide vertical support for the top member. A pair of foldable uprights, each of which comprises a first and a second framework hingedly secured together, and adequately braced, are employed. Each framework includes a first and a second vertical leg with the adjacecnt legs of the respective frameworks, when in assembled position, serving to form the four vertical posts. The lower ends of these posts rest upon the floor or other surface and a

pair of foldable stabilizing base members are detachably engaged therewith to provide a large base of support for the structure and to minimize any tipping action. The upper ends of the posts rest in contact with the undersurfaces of the extended top member, and in order to distribute the loading on that top member during usage, a pair of foldable supports are attached both to the undersurface of the top member and to the posts, as well as to each other, thus to minimize any torsional action of the top member about those posts.

Referring now to FIG. 1, a generous work surface for the carpenter or other user of the apparatus is provided by the flat top member comprising foldable panels 10 and 11 joined along their abutting edges by hinges 12 and 13. For purposes of illustration, the apparatus is shown being formed of wood, but other materials may be employed and particularly for forming the top member. As a significant feature, the primary support for the top member is provided by a pair of foldable uprights, preferably of identical and interchangeable nature, and one of which is best seen in FIG. 9.

This representative upright includes a first framework having a first leg 14 and a second leg 15 rigidly held in parallel spaced relation to ecah other by an upper cross bar 16 and a lower cross bar 17, the latter cross bar being adapted to rest upon the floor or other surface supporting the work-bench during use. Corner braces 18, 19, 20 and 21 serve to reinforce the framework. The complementary secondary framework of the same upright comprises a first leg 22 and a second leg 23 rigidly held in parallel spaced relation to each other by an upper cross bar 24 and a lower cross bar 25. Corner braces 26, 27, 28 and 29 serve to reinforce this framework. The lower cross bar 25 is adapted to rest upon the floor and the upper cross bar 24 preferably, but not necessarily, is adapted to contact the under surfaces of the panels of the top member. Suitable hinges 30 and 31 hold the two frameworks in permanently attached, but foldable relation, to each other.

Referring now to FIGS. 1, 4 and 5, in assembling the apparatus the legs of the described upright and of its companion upright whose similar parts are indicated by the suffix, A, will when so assembled form four posts indicated generally at 32, 33, 34 and 35. Each post comprises two legs, the bottoms of which rest on the floor and the tops of which contact the under surfaces of the top member, and these posts are spaced symmetrically apart and provide a central region in the top member interiorly of the posts and of sufficient area for a large aperture 36 in the top member for a purpose later to be described. Two pairs of detachable fastenings, one of which is seen at 37, 38 in FIG. 1, serve to join the adjacent legs of the adjacent separate uprights together and in cooperation with the pair of hinges 30, 31 on each upright provide for stabilization against twisting of the supports.

For stabilization against tipping, as when long pieces of lumber or the like are being handled on the work surface, the invention comprehends the use of a pair of foldable base members as best seen in FIGS. 1 and 5. One of these base members comprises an elongated foot 40 connected by hinge 41 to a shorter cross foot 42 and which cross foot is securely engaged as by a mortise joint (FIG. 7) with the other elongated foot 40A. Suitable detachable fastenings, as seen at 43, 44, 45 and 46, rigidly hold the pair of assembled base feet against each of the four supporting posts adjacent the lower ends of those posts. The base feet rest upon the floor and the cross feet portions thereof, as well as the ends of the elongated feet portions extend outwardly of the posts sufficiently far to stabilize the structure against tipping.

As seen in FIG. 4, the thus-described supporting struc-

ture may conveniently be secured to the top member by a pair of interchangeable foldable upper supports. One of these supports comprises a first arm 50 extending across the abutting edges of the panels 10 and 11 and has hinged thereto as at 51 a second arm 52 extending generally parallel to those edges. By means of suitable detachable fastenings 53 and 54 the pair of upper supports are rigidly connected to each other during use. For rigidly securing the upper supports to the four posts, suitable detachable fastening means such as seen at 55, 56, 57 and 58 are provided adjacent the tops of those posts. Finally, for rigidly assembling the top member upon the described structure any suitable means, such as a series of removable screws 59 passing through the upper supports and engaging in the underside of the top member panels may be used. In the event that such secure mounting is not required, a series of register pins of the like (not shown) may be permanently mounted in the upper surface of the upper supports to engage in holes in those panels.

The dimensions of the foldable upper supports preferably are such as to locate the ends of the respective arms well outboard of the posts and to distribute the loadings placed upon the top member. In general, I prefer to employ a top member of substantially square shape and whose edges lie at substantially uniform distances from the posts. The top member is adapted for use with many types of tools employed by carpenters or other artisans, such as electric saws, routers, drills, planers or the like. The upper surface of the top member may be formed with tracks 60, 61 for use with movable mitering guides or the like. The aperture 36 may be formed with suitable shoulders on which a selected tool may be rigidly mounted, and the construction of the framework of the uprights preferably is such as to permit ready manipulation of switches for electric tools upon reaching beneath the top member. The invention comprehends the substitution of one top member for another without change in the remainder of the structure, and in such usage a series of top members formed, for example, of plastic materials having apertures 36 of proper size molded therein for receiving a chosen tool, may be employed.

In all cases, however, the top member and the remainder of the structure is intended to be readily foldable into a compact space when not in use. When necessary to achieve a minimum of storage space, hinges, such as seen in FIG. 6, and other fastenings may be suitably recessed into the parts to which they are attached.

Having thus described the invention, the advantages thereof will be readily apparent to those skilled in the art. The interchangeability of the numbers within the several pairs of elements; the rapidity with which the structure may be assembled and disassembled; the strength achieved by the mutual reinforcing of the several parts; and the location of the axes of the several hinges and fastening means in different planes for achieving reinforcement, all assist in overcoming disadvantages found in conventional work benches.

Modifications of my invention will occur to those skilled in the art and it is to be understood therefore, that this

invention is not limited to the particular embodiments disclosed, but that it is intended to cover all modifications which are within the true spirit and scope of the appended claims.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In a work-bench or the like adapted for folding into a compact space when disassembled, the combination comprising a top member having a pair of panels hinged to each other along their abutting edges, a pair of foldable uprights each having a first framework and a second framework, each framework comprising a first vertical leg and a second vertical leg with braces therebetween, hinges connecting the second leg of each of said first frameworks with the first leg of each of said second frameworks, fastening means detachably connecting the first legs of each of said first frameworks with the second legs of each of said second frameworks, a pair of foldable stabilizing base members each comprising an elongated foot and a cross foot hingedly connected thereto, means detachably securing the outer end of each of said cross feet to the respective elongated foot of the other base member, fastening means detachably connecting each of said elongated feet to the second frameworks of the respective uprights adjacent the lower ends of the legs thereof and outboard of said legs thereof, a pair of foldable upper supports each comprising a first arm extending across the abutting edges of said panels and a second arm extending generally parallel to said abutting edges and hingedly connected to said first arm, fastening means detachably connecting each of said second arms adjacent the outer ends thereof to said first arms of the other upper support, fastening means detachably connecting each of said second arms to the respective second frameworks of said first and second uprights adjacent the upper ends of the legs thereof and outboard of said legs, and means for detachably securing said upper supports to the undersides of each of said panels thereby to support said top member rigidly upon said uprights.

2. A work-bench as defined in claim 1 wherein said braces between said first and second vertical legs of at least one of said frameworks include a lower cross bar adapted to rest upon the same surface as the feet of said stabilizing base members.

3. A work-bench as defined in claim 1 wherein said braces between said first and second vertical legs of at least one of said frameworks include an upper cross bar adapted to contact the underside of said top member.

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