Feb. 26, 1952 C. O. LARSON 2,587,177

FOLDING WORKBENCH

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Fig. 1.

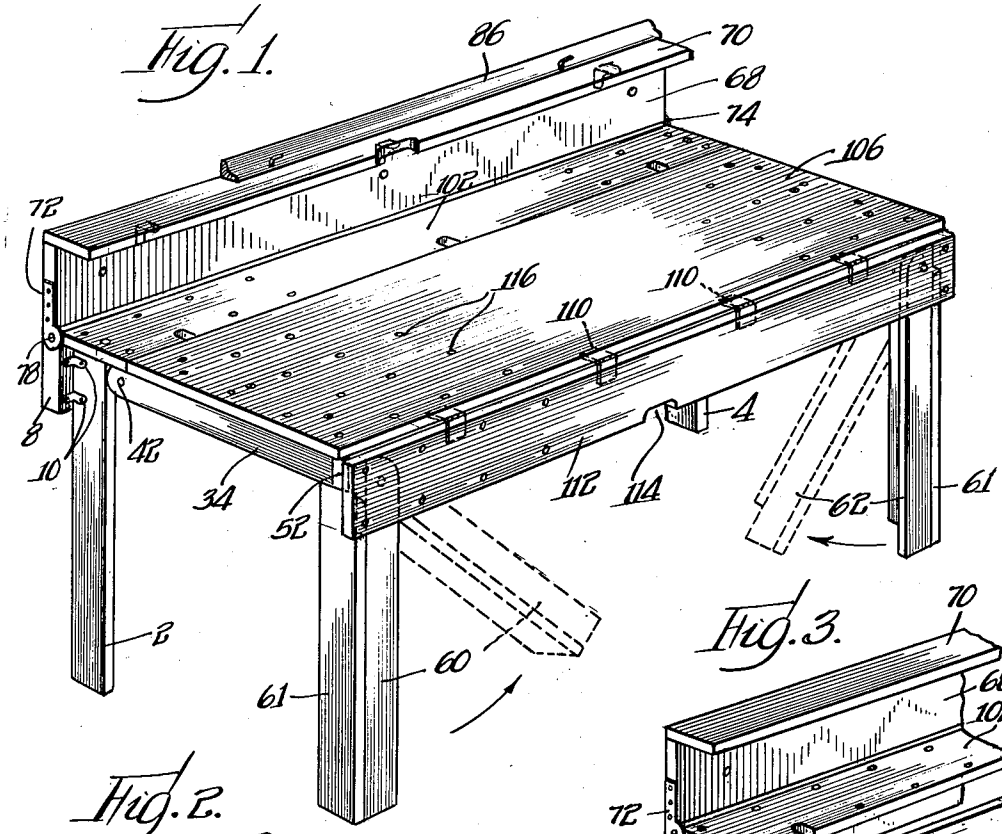


Fig. 2.

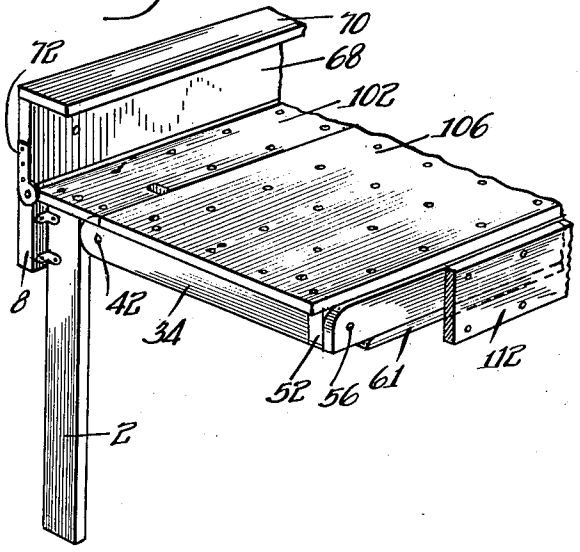
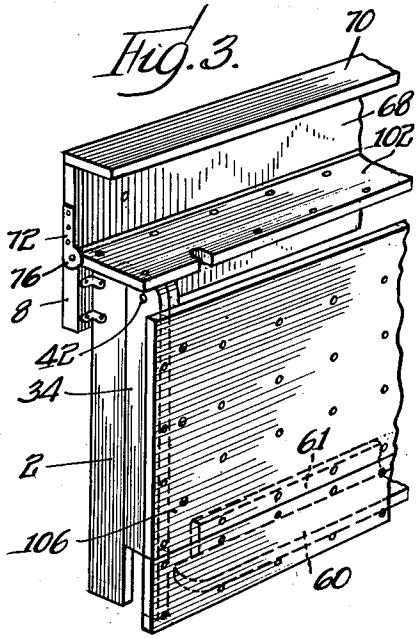


Fig. 3.



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Fig. 4.

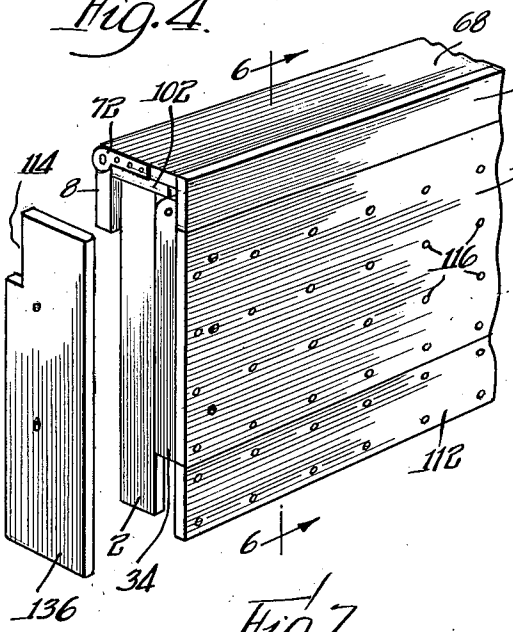


Fig. 5.

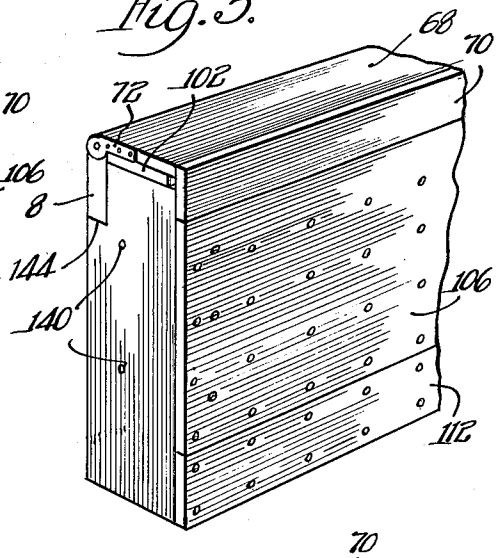


Fig. 7.

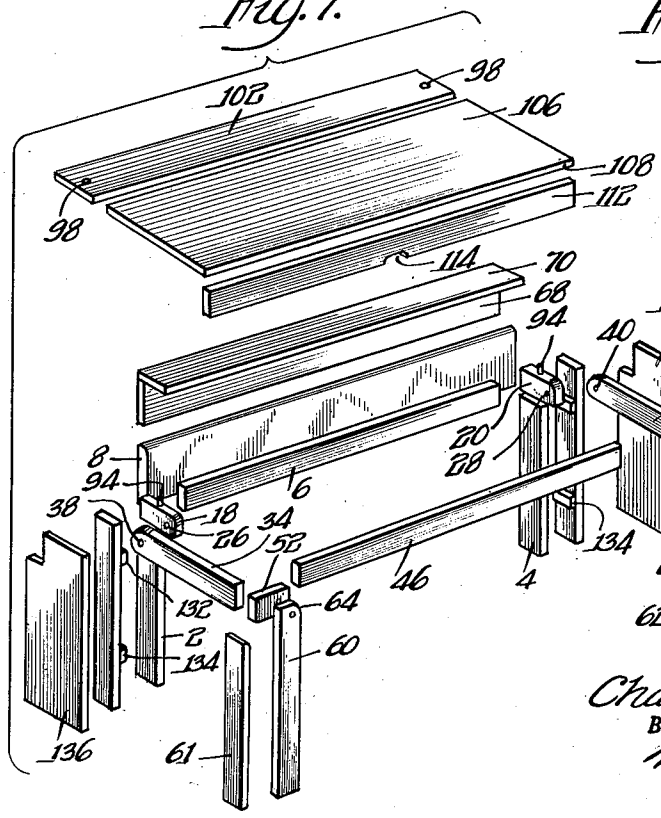
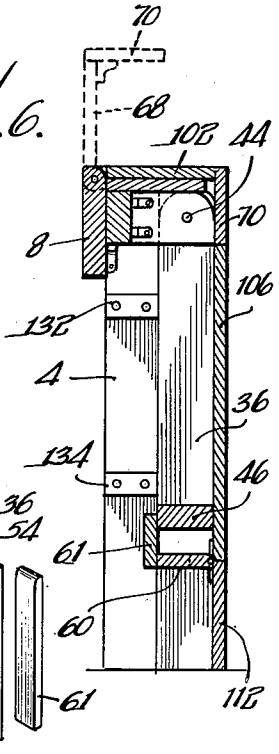


Fig. 6.



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Fig. 8.

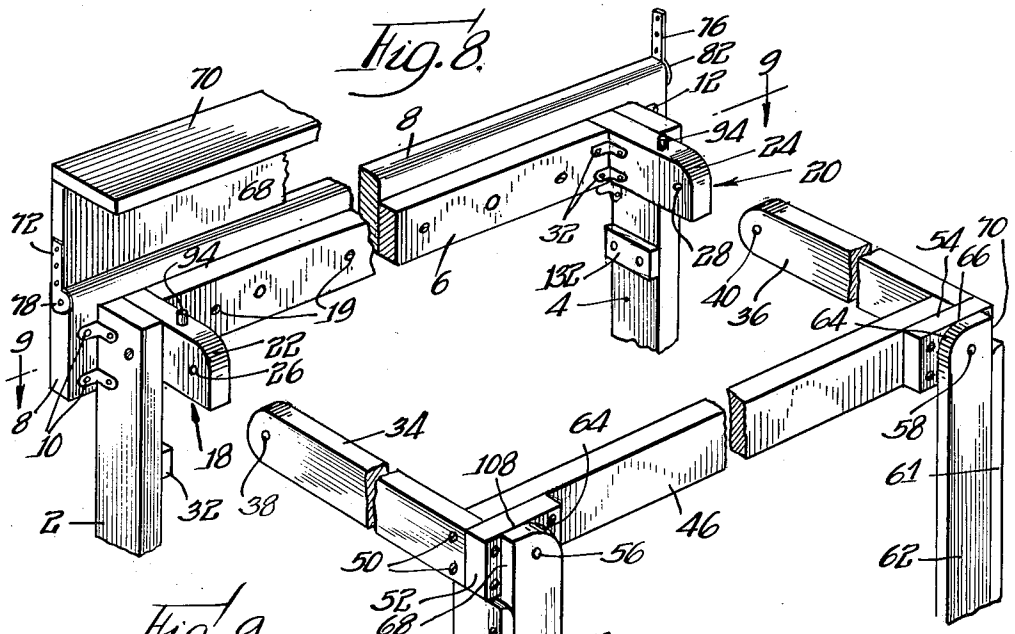


Fig. 9

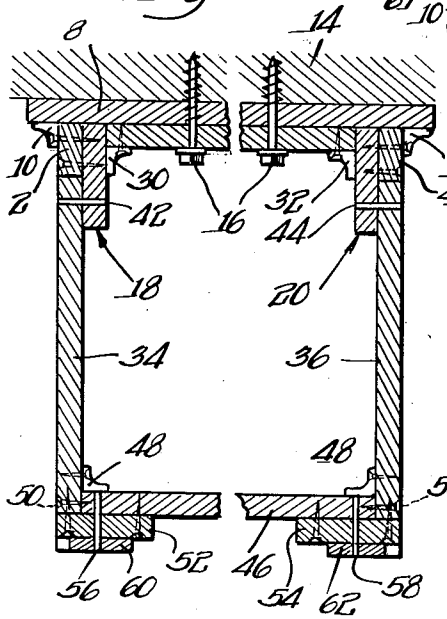


Fig. 10.

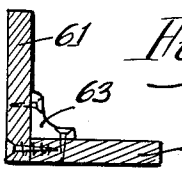


Fig. 12.

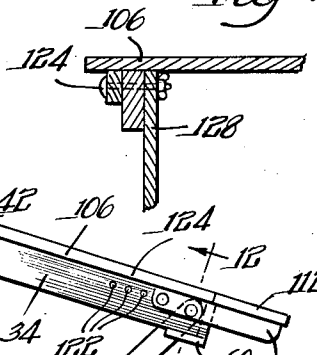


Fig. 11.

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FOLDING WORKBENCH

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Application June 10, 1947, Serial No. 753,675

11 Claims. (Cl. 144—286)

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This invention relates to a folding workbench.

Among the objects of the present invention is to provide such a workbench made of a number of standardized shapes, preferably of wood, interconnected by standardized hardware and constructed and arranged so that the relatively shiftable parts thereof may be moved to open position to form a workbench, or shifted to a second position where the front legs of the workbench swing upwardly to folded position, and wherein the flat horizontal surface of the workbench may swing downwardly to an inclined position and be held thereat so as to provide a drawing board or table, and also wherein the various members of the workbench are adapted to fold into a compact closed casing for shipping or for storage purposes.

Yet another object of the invention resides in providing a folding workbench having a pair of front legs adapted to hinge upwardly to the underside of the horizontal table portion of the workbench and wherein the table portion itself is hinged to swing downwardly in a vertical position adjacent the rear vertical legs of the workbench, and wherein also the workbench is provided with a rear hinged shelf adapted to swing forwardly and downwardly over the top of said downwardly swung platform portion to form with the downwardly swung platform portion a complete casing whereby the workbench is folded to a compact form for storage or shipping.

Yet another object of the invention resides in providing a folding workbench having the various characteristics disclosed in the appended specification and shown in the accompanying drawings.

These and other objects of the invention will be apparent from a perusal of the following specification when taken in connection with the accompanying drawings, wherein:

Figure 1 is a perspective view of the workbench when unfolded to open position;

Figure 2 is a side view of the same with the front board removed to show the underlying construction;

Figure 3 is a view showing the horizontal working surface swung downwardly to vertical position;

Figure 4 is a view showing the rear upper shelf of the workbench swung downwardly to closed position;

Figure 5 is a similar view with the end boards placed in position and secured together, as, for instance, by screws;

Figure 6 is a sectional view taken on the line 6—6 of Figure 4;

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Figure 7 is an exploded view of the various parts of the workbench;

Figure 8 is a somewhat skeleton view of the understructure of the workbench;

Figure 9 is a section taken on the line 9—9 of Figure 8;

Figure 10 is a section taken on the line 10—10 of Figure 8;

Figure 11 is a view showing the manner in which the workbench is modified to make a drawing board; and

Figure 12 is a sectional view taken on the line 12—12 of Figure 11.

Referring now to the drawings in detail, the workbench comprises a pair of upright wooden legs 2 and 4 which may be of any desired cross section, but are generally of the general shape and configuration of short lengths of two by fours. These legs are arranged in spaced relation at the rear corners of the workbench. Referring to Figure 8, it will be seen that the top portions of the legs 2 and 4 are rigidly interconnected to the outer ends of a back board 8 by corner brackets 10 and 12. This back board 8 may be rigidly fastened to a building wall 14 by means of screws or other fastenings 16. It is to be noted that the back board 8 rises above the upper ends of the rear legs 2 and 4. Rigidly attached to the inner upper walls of the rear legs 2 and 4 are two pivot blocks 18 and 20 which have forwardly curved walls 22 and 24 and are provided with openings 26 and 28 for pivot pins. A two by four, such as 6, is disposed between the inner wall portions of the blocks 18 and 20 and is rigidly connected to the front face of the back board 8 by means of the screws 19. Additional corner brackets 30 and 32 rigidly interconnect the outer ends of the two by four 6 with the blocks 18 and 20. By means of this construction the entire rear assembly is rigidly interconnected. Pivotally attached to the blocks 18 and 20 are two pivotally mounted side frames 34 and 36. The rear ends of these side braces are suitably curved and are apertured as at 38 and 40 to receive pivot pins 42 and 44 which pass through the apertures 26 and 28, and 38 and 40, of the side frame members whereby the side frame members 34 and 36 can swing about the pivot pins 42 and 44. The forward ends of these frame members 34 and 36 are rigidly interconnected to a front frame member 46 at the corners by means of the metal brackets and screws 48 and 50. Additional spacer blocks 52 and 54 are provided to space the two forward legs depending from these blocks from the front face of the front cross member 46 and the forward ends of the side

frames 34 and 36 and also to support the pivot pins 56 and 58 which pivotally support the front legs 60 and 62 therefrom. These front legs, as shown, are preferably L-shaped in cross section, being formed by two right angularly disposed boards suitably interconnected by screws and the corner brackets 63, as shown in Figure 10. The top wall portions 64 of these front legs are curved as shown in Figure 8. Each of the side boards 61 of the front legs is shorter than the complementary front board of each leg, so that when the legs are swung downwardly into open position, the boards 61 being cut away will rest under the side boards 34 and 36.

A hinged shelf member is provided for the rear of the workbench. This comprises a rear back board 68 and a right angularly disposed shelf board 70. These boards are suitably interconnected by screws and disposed in normal L-shaped arrangement. The bottom portion of the side edges of the back board 68 have affixed thereto the flat metal hinge members 72 and 74 having rounded head portions 76 which are pivotally attached as at 78 to the ends of the back portion 8 whereby this shelf-like bracket may either be disposed in vertical upright position as shown in Figure 8 or may be swung to a horizontal position as shown in Figures 4, 5 and 6. In addition, fixed to the rear building wall 14, see Figure 11, is a horizontally disposed strip 86 which is adapted to overlie the open position of the horizontal shelf board 70 in such a manner that when the workbench is moved rearwardly into position against the rear wall with the shelf-like portion 68—70 in raised vertical position, the horizontal shelf portion 70 will directly underlie the horizontal strip 86 which will hold the shelf-like portion 70 in vertical position.

The upper surfaces of the blocks 18 and 20 are provided with upstanding dowel pins 94 which serve to register with holes 98 in a loose board 102 which loosely overlies and rests upon the upper surfaces of the blocks 18 and 20, as shown clearly in Figure 1. The rear edge 104 of this loose board contacts the front face of the vertically disposed rear board 8.

A top panel 106 for the bench provides a working surface and is fixed to the upper surfaces of the side frame members 34 and 36 by screws and lies in a horizontal plane flush with the top surface of the loose board 102. The front edge 108 of the top panel 106 extends forwardly to a position shown in Figure 1 whereby the front edge 108 is in alignment with the front vertical surface of the legs 60 and 62. In addition, the front edge 108 of top panel 106 is provided with a set of hinges 110 which hingedly connect with a drop panel 112 which forms a front surface for the bench. This front surface is provided with a notched handhold 114. Both the back panel 102, top panel 106, and the front panel 112 are provided with spaced holes such as 116 to receive pins acting either as means to fix gauges or clamps for holding work pieces in place.

In order to convert the workbench to a drawing table, as in Figure 11, the legs 60 and 62 are folded upwardly into horizontal position as shown in Figures 2 and 11 and a pair of side bars or strips 118 are provided which are adjustably secured in a series of holes 122 on the side members 34 and 36 by means of wing nuts 124 and 126 and either one will receive an elongated leg 128, there being one on each side, the lower end of which is adapted to rest in the junction of the floor 130 and wall 14 just to the rear of the

leg members 2 and 4 whereby the table top 106 may be held at any adjustable angle by shifting the support members 118. It will be noted that in this position the forward end of the support member 118 forms an additional support for the now raised position of the hinged front board 112 which is thus swung up to a position flush with the plane of the top panel 106, thus forming a continuation of the top panel 106 and making it a larger working surface for the inclined drawing table.

The first step in folding up the workbench is to fold up the two front legs from the position shown in Figure 1, the legs being pivoted about their pivots and moving in the direction of the arrows arcuately and upwardly to a position as shown in Figure 2, wherein the legs are folded directly underneath the top surface 106 and behind the front panel 112 which is held down by screws in Figure 1. The next operation is to swing the front board 106 and the legs folded thereunder from a horizontal position to the position shown in Figure 3, whereby the side supports 34 and 36 will swing down into contact with the rear legs 2 and 4, as shown in Figure 3, the front legs being in folded position as shown in dotted lines in Figure 3. In this folded position blocks 132 and 134 form stops for the inwardly shifted position of the members 34 and 36. Next, as shown in Figure 6, the rear shelf is moved from the dotted line position of Figure 6 down to the full line position to close the top. It will be noted that the front edge of this shelf contacts the rear edge of the panel 106 in this position. The front panel 112 in this position forms a continuation of the plane of the panel 106. Next, the two side closure members 136 and 138 are placed in position as shown in Figure 5 and attached thereto by screws 140. It is to be noted that these side boards 136 are suitably notched as at 144 in order to permit the projecting ends of the back board 8 to lie flush with the flush outer walls of these side boards 136 and 138. The whole combination when it is folded together forms a box-like structure adapted to be held together by suitable wood screws. It will thus be seen that the folding workbench, when folded into position as shown in Figure 5, may be put away in a compact form, or may be compactly shipped in this condition.

When the workbench is suitably mounted and in position as shown in Figure 1 it is adapted to accommodate different types of work fittings such as a metal vise, and also to provide dowel supports for positioning miter boxes and the like. It also may be adapted for fittings to support tools such as grinding or cutting implements, and in addition the back portion may form a shelf to support materials used in connection with the aforementioned devices. It also may be used for supporting large frame pieces, such as windows, which are to be held in rigid position while the operator is performing some process thereon, such as planing or sawing.

Obviously the invention is not limited to the specific details of construction disclosed herein but is capable of other modifications and changes without departing from the spirit and scope of the appended claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. A folding workbench comprising a pair of corner rear legs, a rear frame rigidly interconnecting the same, a pair of top side members pivotally connected to said rear frame, means inter-

connecting and rigidifying said side frame members, a pair of front legs pivotally connected to the front ends of said side frame members whereby said legs swing about horizontal pivots from a vertical position to a horizontal position, a bench top rigidly carried by said side frame members, a hinged extension for said bench top hingedly connected thereto for swinging into a plane at right angles to the plane of the bench top, and a shelf member of substantially L-shaped formation hingedly connected to the rear of said back frame member whereby said shelf member may be swung to vertical upright position to have the angled portion thereof directly overlie and lie parallel to the rear portion of the work surface of the bench, or whereby when the legs have been folded upwardly and the bench working surface has been swung downwardly parallel to and adjacent the rear legs, said shelf member may be swung downwardly into position to close the top of said bench whereby said bench may be folded into substantially a compact rectangular formation for shipping or storage.

2. A folding bench comprising a pair of rear legs, a rear cross support interconnecting said rear legs, a pair of side frame members pivotally connected to said rear leg structure to swing about horizontal pivots, a front frame member rigidifying and interconnecting the side frame members, a pair of front legs each pivotally connected to the front leg structure to swing about horizontal pivots, a bench top connected to said side frame members whereby said bench may fold from an open position to a closed position wherein the front legs swing upwardly into parallelism beneath the bench top, and whereby the bench top may be swung downwardly into parallelism with the rear leg members, and means pivotally disposed on the rear leg structure for closing the space between the folded bench top and said rear leg structure whereby to provide a substantially rectangular folded structure for the bench for shipment or for storage.

3. A carpenter or working bench having four legs, a top, and an upright shelf at the rear, the front legs being pivotally connected to fold substantially parallel to the top surface of the bench and parallel to the rear of the bench, and the top surface of the bench being pivotally interconnected to swing into a position parallel with the rear legs, said rear leg structure having a pivotally connected rear shelf adapted to fold downwardly toward the upper surface of the rear legs and with respect to the folded bench top to form a compact, substantially rectangular figure, and a pair of side boards adapted to enclose the side ends of the folded structure and adapted to be connected to the structure by suitable fastening means.

4. A working bench having rear legs and a rigidifying rear leg structure, a pair of side frames pivotally connected to said rear leg structure, means for rigidifying said side frames a plane working surface for the top of said bench, a hinged extension pivotally connected to the front edge of said working surface, a pair of extension blocks adjustably connected to said side frame members, and a pair of front legs pivotally connected to said side frames, said extension blocks supporting the top extension in a position flush with the plane of the main working surface, said front legs being adapted to hold said entire top and its extension in inclined position.

5. A foldable working bench comprising a pair of rear legs and a rigidifying, interconnecting, rear leg cross support, a board member detachably overlying the upper ends of said rear leg structure, a pair of side frame members pivotally connected to said rear leg structure, said side frame members being rigidly connected at the front to provide a front leg support, a pair of legs connected to said front leg support to swing to open position thereunder, a bench top mounted upon said side frame members with its rear edge lying in the plane of the board, and a shelf member pivotally connected to said rear leg structure and having an angularly disposed portion adapted to overlie the board in parallel relation.

6. A foldable working bench comprising a pair of rear legs and a rigidifying, interconnecting, rear leg cross support, a board member detachably overlying the upper ends of said rear leg structure, a pair of side frame members pivotally connected to said rear leg structure, said side frame members being rigidly connected at the front to provide a front leg support, a pair of legs connected to said front leg support to swing to open position thereunder, a bench top mounted upon said side frame members with its rear edge lying in the plane of the board member, and a shelf member pivotally connected to said rear leg structure and having an angularly disposed portion adapted to overlie the board member in parallel relation, said front legs when swung upwardly permitting the bench top to be swung downwardly, said shelf member being swingable downwardly to overlie the loose board member and with the angular shelf portion lying parallel to the surface of the folded bench top.

7. A folding workbench comprising a pair of corner rear legs, a rear frame rigidly interconnecting the same, a pair of top side members pivotally connected to said rear frame, means interconnecting and rigidifying said side frame members, a pair of front legs pivotally connected to the front ends of said side frame members whereby said legs swing about horizontal pivots from a vertical position to a horizontal position, a bench top rigidly carried by said side frame members, and a shelf member of substantially L-shaped formation hingedly connected to the rear of said back frame member whereby said shelf member may be swung to vertical upright position to have the angled portion thereof directly overlie and lie parallel to the rear portion of the work surface of the bench, or whereby when the legs have been folded upwardly and the bench working surface has been swung downwardly parallel to and adjacent the rear legs, said self member may be swung downwardly into position to close the top of said bench whereby said bench may be folded into substantially a compact rectangular formation for shipping or storage.

8. A folding work bench comprising a rear frame, a front frame pivotally connected to said rear frame, a pair of front legs pivotally connected to the front end of said front frame, said front legs being pivotable to a supporting position and to a position parallel to the top surface of said front frame, and a shelf member of substantially L-shaped formation hingedly connected to the rear of said rear frame whereby said shelf member may be swung to vertical upright position to have the angled portion thereof directly overlie and lie parallel to the rear portion of the surface of the bench, or whereby when the legs have been folded upwardly and the front frame has been swung downwardly parallel to and adjacent the rear frame, said shelf member may be swung downwardly into position to close the top of said

bench whereby said bench may be folded into substantially a compact rectangular formation for shipping or storage.

9. A foldable work bench comprising a vertically disposed rear frame, a front frame pivotally connected to said rear frame and providing a plane work surface, a pair of legs pivotally mounted on the forward side of said front frame for holding said front frame in a position in which the work surface is substantially horizontal, and a shelf member pivotally connected to said rear frame and having an angularly disposed portion adapted to overlie the horizontal top surface of said rear frame, said legs when swung upwardly permitting the bench top to be swung downwardly in a position substantially parallel to said rear frame, said shelf member being swingable downwardly to overlie the top of said rear frame with the angularly disposed portion of the shelf member lying parallel to the work surface of the front frame.

10. A folding work bench comprising a rear leg structure, a pair of foldable side arms pivotally mounted on said rear leg structure, a pair of front legs pivotally mounted adjacent the front ends of said side arms, a bench top carried by said side arms and of a width to its front edge less than the height of said rear leg structure, and a bench top extension hinged to the forward edge of said bench top and disposed at right angles there-

to when the bench is open with the bench top in substantially horizontal position, and said extension lying in the plane of said bench top when the bench is closed with the bench top substantially parallel to said rear leg structure to form with said bench top a front closure for the folded structure down to the bottom of said rear leg structure.

11. A folding work bench as claimed in claim 10, wherein means are provided for engaging said extension and adjacent portions of said bench top to maintain the said bench top and said extension in substantially coplanar relative positions.

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