Feb. 18, 1941. L. P. BURCH 2,232,313

METHOD OF AND APPARATUS FOR BUILDING BOATS

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FIG. 1.

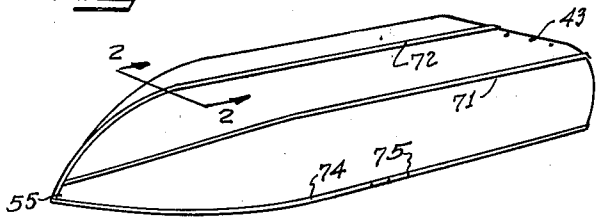


FIG. 2.

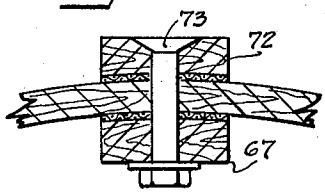


FIG. 3.

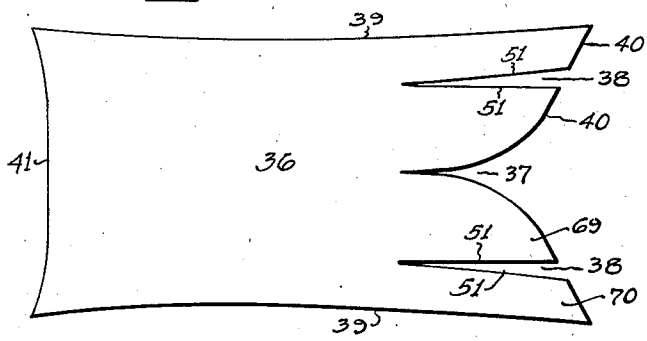


FIG. 4.

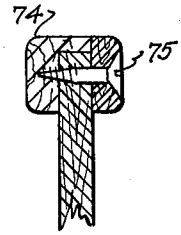


FIG. 5.

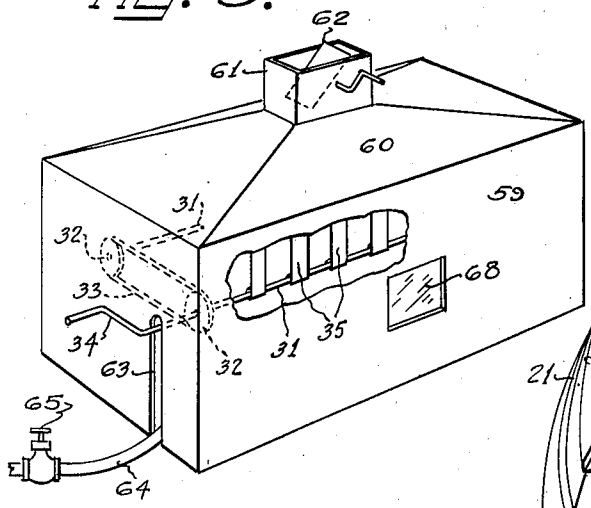
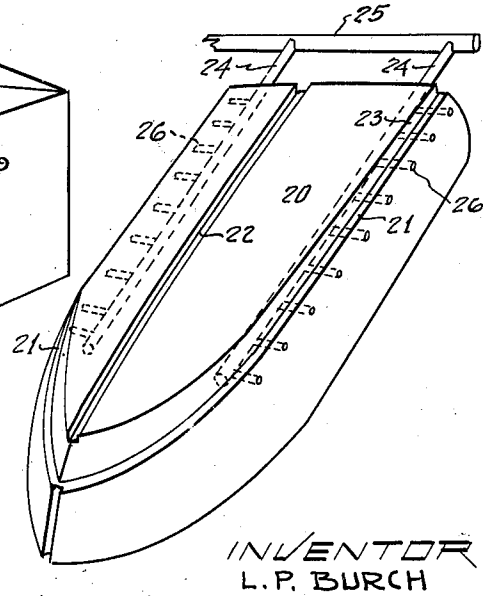


FIG. 6.



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METHOD OF AND APPARATUS FOR BUILDING BOATS

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FIG. 7.

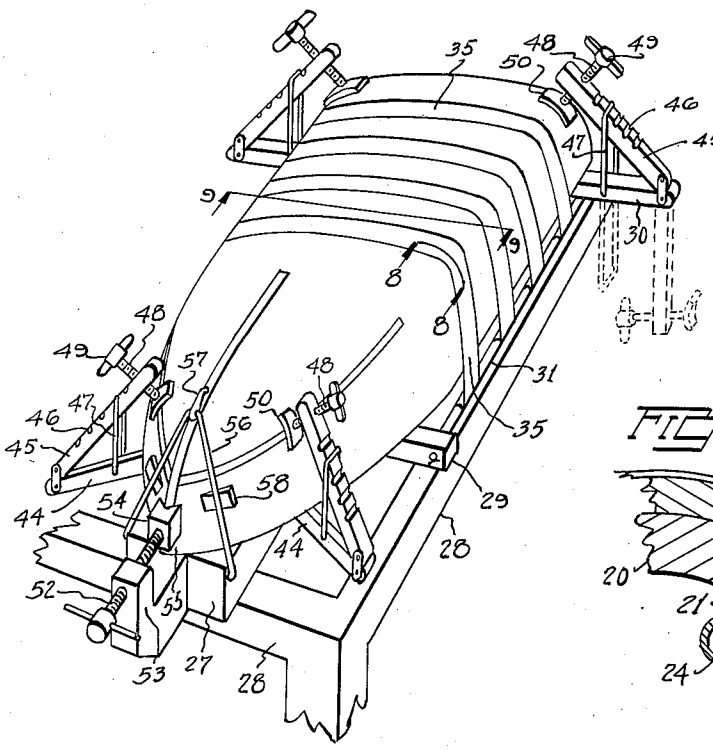


FIG. 8.

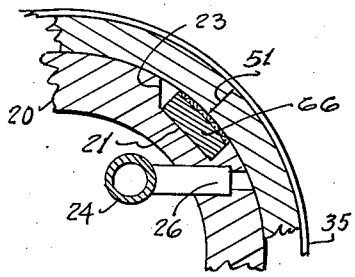


FIG. 9.

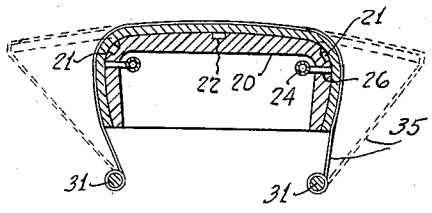


FIG. 10.

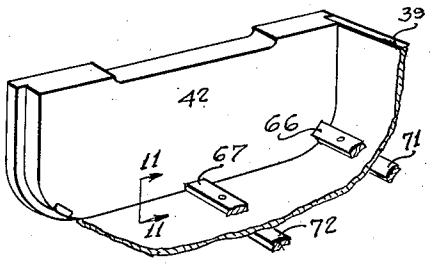
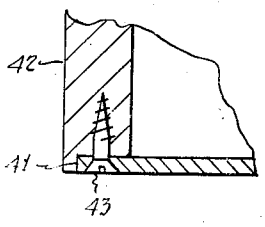


FIG. 11.



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UNITED STATES PATENT OFFICE

2,232,313

METHOD OF AND APPARATUS FOR BUILDING BOATS

Loren P. Burch, Aberdeen, Wash.

Application June 13, 1939, Serial No. 278,357

2 Claims. (Cl. 9—6.5)

This invention relates generally to boat building, and particularly to a method of and apparatus for building boats.

The main object of this invention is to develop a method of building boats out of fabricated non-metallic panels in a manner to greatly reduce the amount of labor required in the construction of a boat as well as to materially reduce the weight thereof without sacrificing the strength.

The second object is to construct an apparatus by means of which sheets of plywood and fabricated non-metallic panels may be shaped into boat form in a relatively short space of time without detracting from the strength of the materials therein.

I accomplish these and other objects in the manner set forth in the following specification as illustrated in the accompanying drawings, in which:

Fig. 1 is a perspective view of a representative form of boat constructed under my process by means of my apparatus.

Fig. 2 is a fragmentary section taken along the line 2—2 in Fig. 1.

Fig. 3 is a typical form of panel used for the planking in the construction of a standard form of boat.

Fig. 4 is a fragmentary section taken through the guard rail along the line 4—4 in Fig. 1.

Fig. 5 is a perspective view of the steam box with a portion broken away to disclose the tape winding mechanism.

Fig. 6 is a perspective view of the form on which the boat is shaped.

Fig. 7 is a perspective view of the apparatus showing the steam box removed and the various clamps in position.

Fig. 8 is a section taken along the line 8—8 in Fig. 7.

Fig. 9 is a section taken along the line 9—9 in Fig. 7.

Fig. 10 is a fragmentary interior view of the transom showing the planking and chines cut away.

Fig. 11 is a section taken along the line 11—11 in Fig. 10.

Similar numerals refer to similar parts throughout the several views.

Referring in detail to the drawings, there is shown a form 20 corresponding with the interior shape of the boat to be built. In the form 20 are formed the chine slots 21 and the keel slot 22. It will be noted that the chine slots 21 have their sides 23 vertical throughout their length in order to permit the removal of the boat from the form 20. Steam pipes 24 which connect with the manifold 25 project into the form 20 and are provided with the outlets 26 which supply steam to the interior of the boat.

The form 20 is mounted on the base 27 which is supported on the elevated frame 28. Cross ties 29 and 30 extend across the frame 28 and have journalling therein the tape winding shafts 31 each of which has secured therein a sprocket wheel 32. The sprockets 32 are connected by means of a chain 33. One of the shafts 31 is provided with a crank 34 by means of which both the shafts 31 may be rotated in the same direction.

Attached to the shafts 31 in any convenient manner and preferably to facilitate the easier removal thereof are the fabric webs 35. These extend around the bow and stern of the boat as shown in Fig. 7. The planking itself is formed from a sheet of plywood or fabricated panel 36 having a V-shaped central cut-out 37 at the middle of one end thereof and two more acute cut-outs 38 between the V-shaped cut-out 37 and the lateral edges thereof, the excess material being removed thereby so that when the edges 39 of the panel 36 are bent downwardly, they will conform to the guard rail edge of the boat. The edges 40 necessarily form the bow while the edge 41 is secured to the transom 42 by means of the screws 43.

Under the bow end of the boat are disposed the clamp bases 44 to which are hinged the clamp arms 45 in whose notches 46 are hinged the clamping rods 47. Clamping bolts 48 are mounted in the clamp arms 45 and have provided on the outer end thereof a handle 49 by means of which the bolts 48 may be turned. The bolts 48 have clamping jaws 50 mounted on the boat engaging end thereof by means of which the adjacent edges 51 of the cut-out portions 38 are brought into intimate contact with each other.

A clamping screw 52 is mounted in the arm 53 which projects from the base 27 and carries on its end a jaw 54 which serves to form the extreme tip 55 of the bow of the boat.

A V-shaped arm 56 is hinged to the base 27 and carries at its upper end a hinged dog 57 which can be driven into the material along the keel line to hold the arm 56 in position. Wedge blocks 58 are inserted between the arm 56 and the material being formed at the position or positions best suited for the purpose.

There is also provided a steam box 59 whose top 60 is provided with an outlet 61 which is provided with a control damper 62. There is also provided a slot 63 in the side of the box 59

through which extends the crank **34** and through which passes the steam hose **64** which connects the steam valve **65** to the manifold **25**.

The practice of the method and the operation of the apparatus are substantially as follows:

When the proper form **20** is in place upon the base **27** and the chine strips **66** are inserted in the slots **21** and the keel strip **67** is inserted in the slot **22**, a sheet of plywood or other suitable material **36** is now placed in position upon the form and the fabricated strips **35** are placed across the sheet **36** and attached to the winding shafts **31**. The steam box **59** is then put in place and steam is turned into the box under the control of the valve **65**.

As the material in the sheet **36** softens under the action of the steam, this action can be observed through the window **68** or it can be felt by turning the crank **34** and the sheet will be bent downwardly in sucessful steps as shown in Fig. 9 until it contacts the form **20** on the top and sides thereof. The steam box **59** is then removed and the projecting ends **69** and **70** are brought into position by the use of the clamping elements **50**, **54**, and **58**. The joints along the edges **40** and **51** are covered with successful layers of tape and adhesive and then covered by their respective chine strips **71** and keel strip **72** which are secured by means of the bolts **73** as shown in Fig. 2. A guard rail **74** is placed along the edges **39** of the boat and held in place by means of the scews **75**. The transom **42** is held in place by means of the screws **43** and the boat is then ready to receive the various other fittings with which it is to be equipped. All of the fitting details have been omitted from the present explanation since they form no part of the invention and do not add to an understanding thereof.

It must be understood that the specific details illustrated herein are not essential but that equivalent elements may be employed which will perform the same or similar functions without departing from the spirit of this invention.

It must also be understood that the particular kind of material employed for these plankings is also unimportant as long as it becomes pliable under the action of steam.

It is of course essential that the completed boat be suitably protected against moisture by the proper filling and preserving agents.

While one form of boat has been shown, it must be understood that the method involved is adaptable to all forms of boats ranging from toys to large sized row boats and launches as well as to the shaping of trailer bodies and other objects not necessarily made of metal.

I claim:

1. A woodworking apparatus of the class described consisting of a base, an interior boat mold mounted on said base in an inverted position, intergeared parallel shafts on opposite sides of said mold below the lowermost edge thereof, clamping tapes having the ends thereof attached to said shafts and the intermediate portions thereof extending around the sides of said mold along the stern portion thereof and a plurality of lever clamps mounted on said base around the bow end of said boat mold whereby pressure may be brought to bear against the chine strips of a boat if necessary.

2. A woodworking apparatus of the class described consisting of a base, an interior boat mold mounted on said base in an inverted position, intergeared parallel shafts on opposite sides of said mold below the lowermost edge thereof, clamping tapes having the ends thereof attached to said shafts and the intermediate portions thereof extending around the sides of said mold along the stern portion thereof, a plurality of lever clamps mounted on said base around the bow end of said boat mold whereby pressure may be brought to bear against the chine strips of a boat if necessary, means for admitting steam to the underside of said mold for the purpose of heating same and softening the fiber of any material placed thereon, and a steam box adapted to be placed over said mold for the purpose of supplying heat to the exterior of a sheet of material placed on said mold.

LOREN P. BURCH.