May 7, 1968 W. A. COOK 3,381,322

COLLAPSIBLE BOAT

Filed Dec. 10, 1965 3 Sheets-Sheet 1

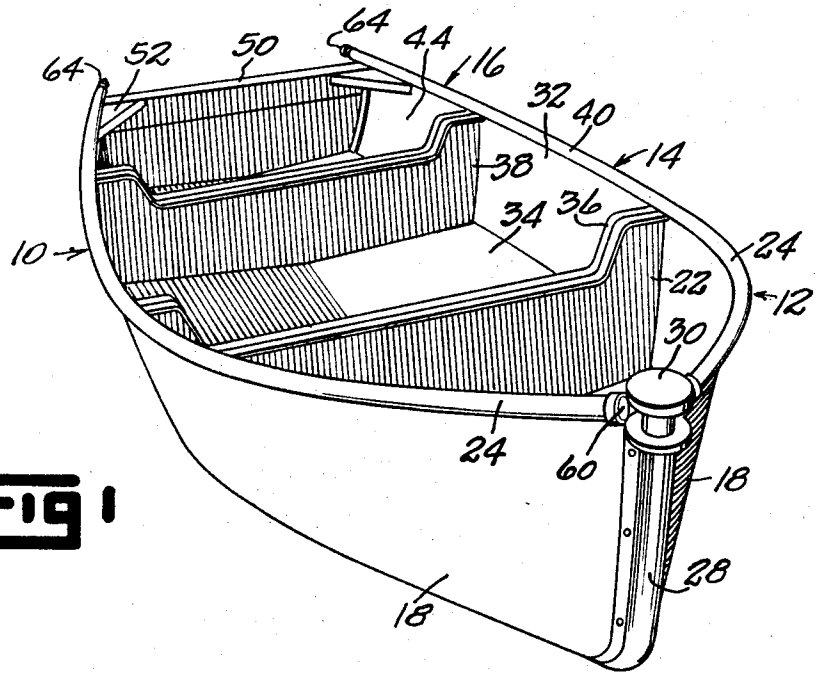


FIG 1

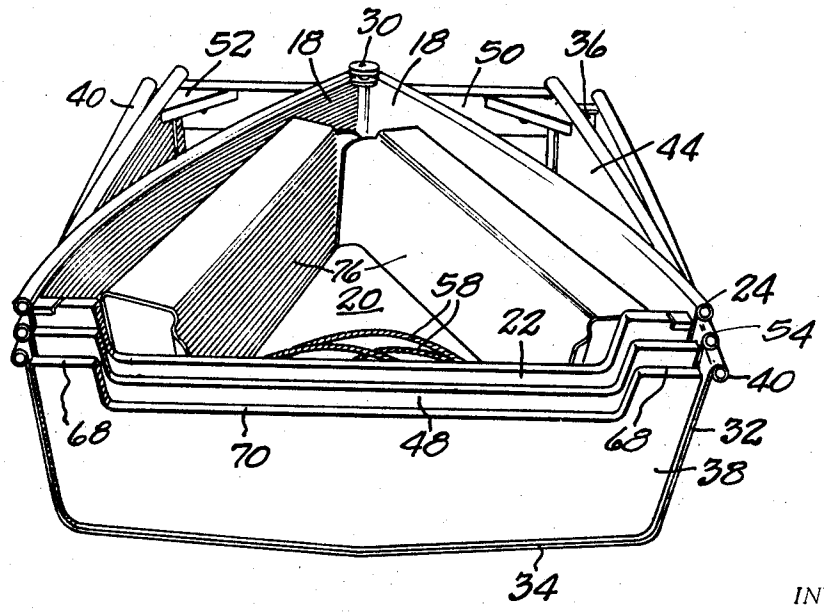


FIG 2

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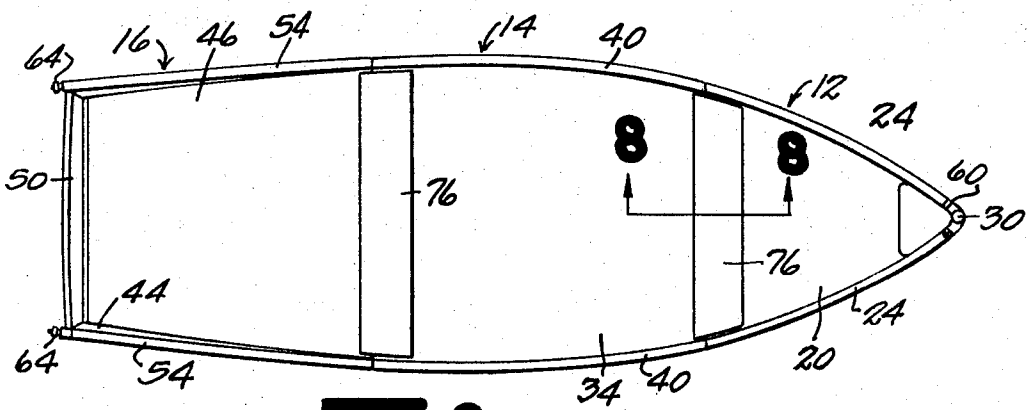


FIG 3

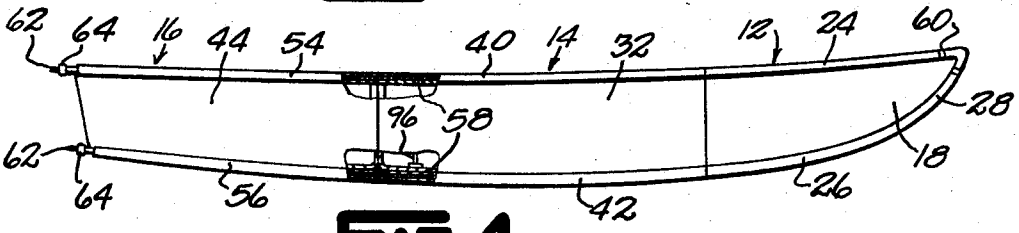


FIG 4

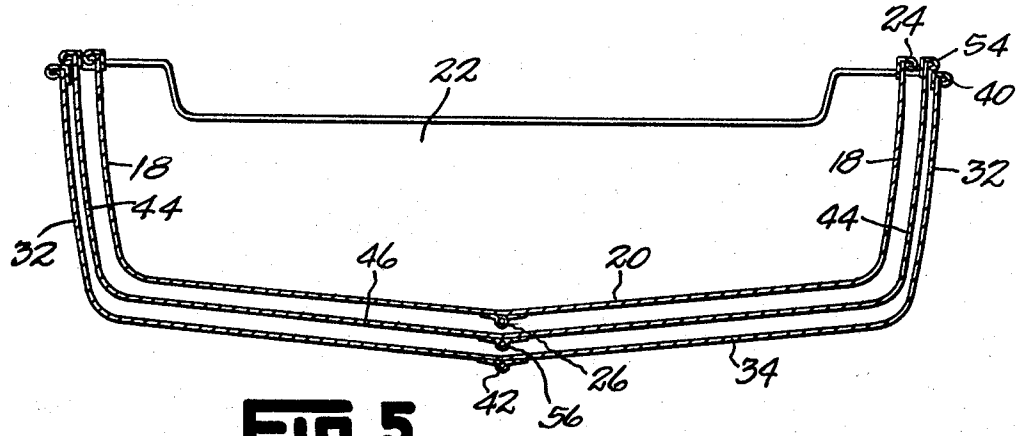


FIG 5

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COLLAPSIBLE BOAT

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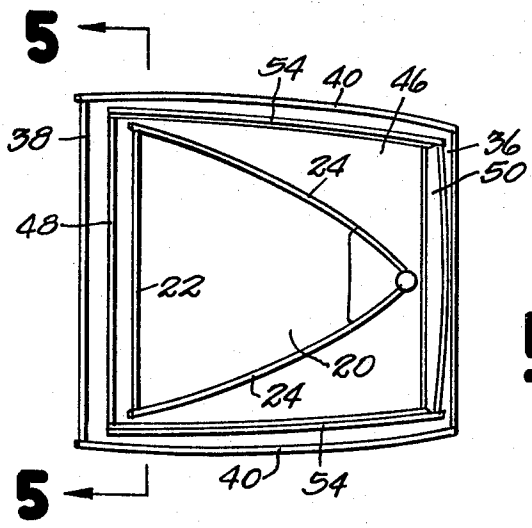


Fig 6

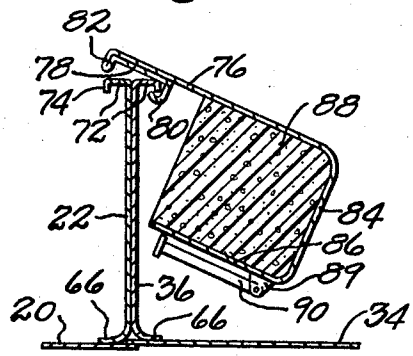


Fig 7

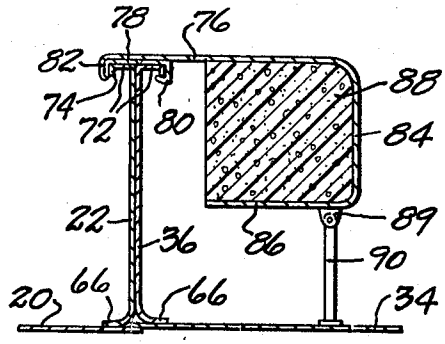


Fig 8

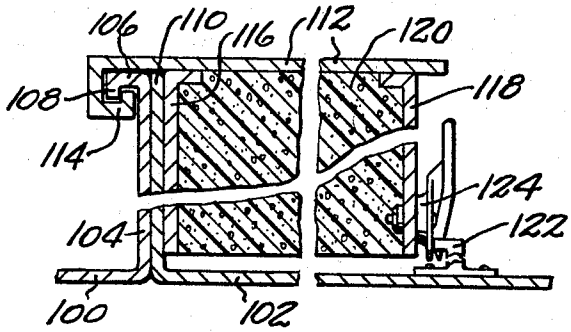


Fig 9

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3,381,322

COLLAPSIBLE BOAT

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7 Claims. (Cl. 9—2)

ABSTRACT OF THE DISCLOSURE

A collapsible boat formed of a plurality of self-contained buoyant sections each having bottom and side walls and at least one vertical transverse wall and having longitudinal guides for tensioned connecting cables at sides and bottom joining the sections with transverse walls abutting, and having seat means supported upon and having sockets releasably interlocked with the upper portions of abutting transverse walls of adjacent sections.

This invention relates to improvements in collapsible boats.

The primary object of this invention is to provide a collapsible boat formed of a plurality of sections, each of which is a self-contained buoyant unit and which fit within each other in a small space for convenience of transport and storage.

A further object is to provide a collapsible boat formed of a plurality of sections wherein each unit or section is light in weight and of a size small enough to permit convenient handling thereof.

A further object is to provide a boat of this character formed of a plurality of sections which can be assembled into a strong, conventional sized boat rapidly and with the use of few general purpose tools and without requiring the use of any special jigs or fixtures or tools.

A further object is to provide a boat formed of a plurality of sections interconnected by cables extending through protective cable positioning tubes extending lengthwise of the boat at spaced parts thereof and tightened by screw-threaded connectors.

A further object is to provide a collapsible boat of this character having a plurality of sections connected by cables drawn taut by screw-threaded connectors so located as to be convenient for manipulation thereof and to avoid interference with the mounting of an outboard motor upon the boat.

A further object is to provide a sectional boat with means for connecting the sections thereof and having boat seats adapted to be readily mounted and dismounted and serving to assist in connecting the sections of the boat to hold the same in operative position, said boat seats being readily and easily installed and removed.

Other objects will be apparent from the following specification.

In the drawings:

FIG. 1 is a perspective view of a boat embodying this invention in its assembled form;

FIG. 2 is a perspective view illustrating the boat in collapsed form with the sections thereof interfitting;

FIG. 3 is a top plan view of the boat in its assembled form;

FIG. 4 is a side view of the boat in assembled form with parts shown in section;

FIG. 5 is a vertical sectional view of a boat with the parts thereof interfitting and taken on line 5—5 of FIG. 6;

FIG. 6 is a schematic view of a boat whose parts have been disassembled and arranged in interfitting relation;

FIG. 7 is a fragmentary sectional view taken on line 8—8 of FIG. 3, and illustrating the application of a seat to the boat in partially assembled position;

FIG. 8 is a vertical sectional view illustrating the seat in its operative position;

FIG. 3 is a vertical sectional view of another embodiment of the seat construction, taken on a section similar to that shown in FIG. 7.

Referring to the drawings which illustrate the preferred embodiment of the invention, the numeral 10 designates a collapsible boat formed of sections. In the form shown a prow section 12, a central section 14 and a stern section 16 are provided. The boat may be formed of any suitable material, such as wood, sheet metal or fiber glass.

The prow section 12 has a pair of rearwardly diverging sides 18, a bottom 20, and a rear vertical transverse wall 22. The prow section is buoyant and is rigidified by tube portions 24 extending lengthwise of the sides 18, preferably at their upper margins. A central tube 26 extends longitudinally centrally and externally along the bottom of the prow section and terminates in a forward upper tube end portion 28 which may mount a removable cap member 30, if desired.

The central section of the boat has curved side walls 32, a bottom 34, a front vertical transverse wall 36, and a rear vertical transverse wall 38. Open ended tubes 40 extend lengthwise of the side walls 32, and an open ended tube 42 extends longitudinally centrally externally along the bottom 34. The front wall 36 of the central section preferably is located rearwardly of the front edge of the bottom 34, and the rear wall 22 of the prow section preferably is located forwardly of the rear margin of the bottom 20 so that the walls 32 and 36 may abut while the bottoms 20 and 34 overlap, as seen in FIGS. 7 and 8. The parts are so proportioned that the front ends of the tubes 40 of the central section will register with the rear ends of the tubes 24 of the prow section, and the forward end of the tube 42 of the central section will register with the rear end of the tube 26 of the prow section. If desired, the marginal overlap shown as between panels 20 and 34 may extend at the sides of said prow and central sections similarly to the arrangement shown in FIGS. 7 and 8.

The stern section 16 is of a length shorter than the length of the central section and of a size to fit within the central section and, in turn, to receive in it the prow section, when the sections interfit as illustrated in FIGS. 2, 5 and 6. The stern section includes curved side walls 44, bottom 46, front vertical transverse wall 48, and rear transom 50. If desired, suitable reinforcing gussets 52 may interconnect the stern side walls 44 and the transom 50. Open ended tubes 54 extend along the sides of the stern section, and an open ended tube 56 extends externally along the central portion of the bottom of the stern section. The front ends of tubes 54 register with the rear ends of the tubes 40 of the central section when the boat sections are assembled, and the front end of the bottom tube 56 registers with the rear end of the bottom tube 42 of the central section. The bottom and sides of the central and rear sections may overlap marginally as shown in FIGS. 7 and 8.

A cable 58 extends through each set of registering tubes. Thus a cable extends through a set of the tubes 24, 40 and 54 at each side of the assembled boat, and a cable extends through the registering tubes 26, 42 and 56 at the bottom of the boat. Each cable mounts a head or abutment member 60 at one end thereof has a screw-threaded shank portion 62 at its opposite end. In the preferred arrangement, the cables extending through the tubes at the sides of the boat have their heads 60 abutting the front ends of the tubes 24 of the prow, and their threaded shanks projecing from the rear of the boat to receive screw-threaded nuts 64 or like connectors which

bear against the rear end of the stern tubes 54 as tension is exerted upon the cables by the connectors.

The cable 58 which extends through the registering tube sections 26, 42, 56 from the prow to the stern along the central portion of the bottom of the boat is similarly tensioned by a screw-threaded nut 64 fitting on a shank portion 62 so as to exert tension to rigidly assemble the boat sections. It may be desirable in the assembly of the boat to apply one or more of the cable abutment members 60 at the rear of the stern tube and the nut 64 at the front of the boat, particularly in the event that an outboard motor is to be mounted upon the transom 50. This will insure minimum interference to mounting of and adjustment of the motor upon the transom 50 and facilitate tightening of the nut 64 in an accessible position atfer the boat has been assembled and the motor has been mounted thereon.

The fact that each of the boat sections is a complete buoyant section facilitates assembly of the boat in the water if that should be desired. Also it insures that if the connection between adjacent sections should loosen, or if any of the connecting parts should break or be released while the boat is in use, the occupants of the boat are not in danger.

The transverse walls 22, 36, 38 and 48 of the respective sections are preferably formed of the cross-sectional configuration best illustrated in FIGS. 7 and 8. Thus each of said walls may have a flange 66 projecting substantially perpendicularly therefrom and extending around its side and bottom margins for continuous sealing engagement and securement with the side walls and bottoms of the respective sections of which they are a part. The upper edge of each of the transverse walls 22, 36, 38 and 48 is preferably shaped as best seen in FIGS. 1, 2 and 5, with its end portions 68 at a level adjacent the top of the side wall of the section of which it is a part, and with a central lower level top edge part 70 slightly below the level of the parts 68. The cross-sectional configuration of the edge parts 68 and 70 of each transverse wall 22, 36, 38 and 48 preferably includes a reinforcing flange 72 preferably extending substantially perpendicularly to the wall and terminating in an outer downturned flange 74. The flanges 72 and 74 serve to rigidify the walls from which they project and also accommodate connector means for holding adjacent walls in operative position when the boat is assembled.

One form of connector between adjacent transverse walls is illustrated in FIGS. 7 and 8 and provides a seat for the boat. In this construction, a seat member is provided with a seat panel 76, preferably formed of metal having one end portion thereof bent upon itself to reinforce and strengthen the same and to form a connector socket receiving or bridging and interlocking the wall flanges 72, 74 of adjacent boat sections. In the construction shown, one marginal portion of seat panel 76 has a portion 78 return bent in engagement therewith and terminating in a downwardly laterally bent hook flange 80 which is adapted to interlock with one of the downturned wall flanges 74 at a joint between boat sections. The socket is completed by a downturned flange 82 spaced from the hook 80 a distance equal to the spacing between the outer edges of the wall flanges 74. It will be seen that the arrangement permits the seat panel to engage and interlock with the wall flanges 72, 74 by first engaging the hook flange 80 under one of the wall flanges 74 while the seat is held in inclined position, as illustrated in FIG. 7. Thereupon, movement of the seat panel to horizontal position, as illustrated in FIG. 8, causes the downturned flange 82 of the seat to engage the opposite wall flange 74. This prevents separation of the walls when the socket is proportioned to have a snug fit with flanges 72 and 74, as illustrated in FIG. 8.

The seat has a cantilevered portion which may be supported by a foldable strut or leg. It is also desired to insure the buoyancy of the seat unit, and means are preferably provided to provide such buoyancy. In the construction illustrated the seat panel 76 has a downturned wall 84 at its free margin, from which in turn projects a lower wall part 86. A body of buoyant material, such as unicellular or closed cell plastic material 88, is confined in the space between the parts 76, 84 and 86. A bracket 89 is preferably mounted on the seat unit as at wall 86 adjacent part 84 and serves to pivotally mount a strut or leg 90. The parts are so proportioned that, when the leg 90 is in collapsed or retracted position illustrated in FIG. 7 alongside the wall parts 86, the seat unit may be manipulated between the FIG. 7 position, the FIG. 8 position, and a free or released position to effect connection or disconnection of the seat. After connection of the seat socket 78, 80, 82 with the flanges 72, 74 has been effected, as illustrated in FIG. 8, the leg or strut 90 may be lowered to bear against the bottom of the adjacent section of the boat and thus provide adequate support for the seat and serve the additional function of positioning the seat to maintain the interlock with the wall panels. It will be understood that the foldable leg need not be secured to the seat, but may be installed in suitable manner to support the cantilevered part of the seat.

Another construction for effecting releasable connection between a seat and the adjacent transverse walls of boat sections is illustrated in FIG. 9. In this construction two adjacent boat sections have bottoms 100 and 102. A transverse wall 104 of one section extends upwardly from the bottom 100 and is characterized by an upper angular reinforcing flange 106 which terminates in a downward flange 108. A transverse wall 110 extends upwardly from the bottom 102 of the other section and terminates substantially flush with the upper surface of the flange 106 of the adjacent boat section. A seat panel 112 has a hook flange 114 extending along one margin thereof adapted to interlock with the flange 108, as seen in FIG. 9. Seat panel 112 has downwardly projecting retainers including a wall 116 adapted to abut the transverse wall 110 when in operative position, and other walls such as 118 defining a protective enclosure within which is mounted buoyant material 120, such as unicellular or closed wall plastic foam material.

Any suitable means may be provided to releasably lock the seat structure in operative position, and for this purpose a bracket 122 may be mounted upon the bottom 102 to be engaged and interlocked by a releasable latch 124, here illustrated as a rotatable member mounted upon a wall 118 and positioned to releasably engage and disengage the bracket 122.

While the preferred embodiment of the invention has been illustrated and described, it will be understood that changes in construction may be made within the scope of the appended claims without departing from the spirit of the invention.

I claim:

1. A collapsible boat comprising at least two buoyant sections, each section having a bottom, sides and at least one transverse vertical wall,

guide means carried by each side of each section,

guide means carried externally by the bottom of each section,

a plurality of spaced flexible tensioning members releasably carried by said guide means and extending longitudinally at the sides and bottoms of said sections and exerting tension thereon to draw said boat sections into engagement at said transverse walls to define a rigid boat assembly, and

a member bridging and fitting around the upper ends of adjacent transverse walls of adjacent boat sections, said bridge member and at least one wall having interchanging hook members.

2. A collapsible boat as defined in claim 1, and means releasably positioning said bridge member in operative position.

3. A collapsible boat as defined in claim 2, wherein said bridge member includes a seat bearing on the upper edges of adjacent transverse walls.

4. A collapsible boat as defined in claim 3, and a strut pivotally carried by one of said seat and boat section and engaging the other of said seat and boat section to operatively position said seat.

5. A collapsible boat as defined in claim 1, wherein said bridge member includes a seat having a socket bridging and releasably interlocked with said walls, and collapsible means supporting said seat in operative position.

6. A collapsible boat as defined in claim 5, and unicellular material carried by said seat to render the same buoyant.

7. A collapsible boat as defined in claim 1, wherein said bridge member includes a seat having a socket

bridging and releasably interlocked with said walls, and means releasably interlocking said seat with a boat section spaced from said walls.

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