

Collapsible boat

Abstract

ABSTRACT OF THE DISCLOSURE

A collapsible boat comprising a first longitudinal main beam terminating in an upwardly bow and stern member; a plurality of longitudinal rib members forming the gunwales and the stringers. The ends of the gunwales and stringers are joined in opposed pairs and each joined pair is held under tension in bracket members provided on the bow and stern members respectively of the main beam member. A plurality of transverse members are spaced apart and include means for retaining the gunwale and stringers in the proper spaced apart position and a skin extends across the so-formed skeleton and is attached to the gunwales. All of the stringers and gunwales are made of detachable, separate elongated tubular members.

Classifications

■ **B63B34/23** Sectionalised, e.g. modular, collapsible or foldable

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CA1055788A

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Other languages: [French](#)

Inventor: [Ragnar Jensen \(Jr.\)](#)

Current Assignee : MARKOVATION NORGE AS

Worldwide applications

1976 [CA](#) 1979 [US](#)

Application CA262,026A events

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Info: [Patent citations \(14\)](#), [Cited by \(16\)](#), [Similar documents](#), [Priority and Related Applications](#)

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Claims (2)

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The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A collapsible boat comprising a skeleton and a skin, impervious to water, in tension about the skeleton; the skeleton including a longitudinal main beam terminating in upwardly curved bow and stern members, a plurality of longitudinal rib members forming a pair of gunwales and longitudinally extending stringers, the ends of the gunwale and stringers being joined in opposed pairs and each of the joined pairs being bowed in tension by open brackets provided in the bow and stern members respectively of the main beam; a plurality of transverse members spaced apart and extending inward of the stringers, the members having open brackets for retaining the gunwales and stringers in a proper spaced-apart position, the skin being insertably attached to the gunwale and extending in tension across the so-formed skeleton, each longitudinal rib member and the main beam being formed by tubular sections with an end of each section being retainably inserted into the other end of the next section making up the stringer or beam, whereby the ribs and beam are collapsible and the mounting brackets being open allow easy disassembly and assembly of the skeleton.

2. A boat as defined in claim 1, wherein the brackets on the bow and stern member for holding the stringers under tension include hook-shaped brackets fixed to respective bow or stern member.

Description

~S5t7~

The present invention relates to a boat and more particularly to a collapsible canoe.

The canoe is basically a structure having longitudinal ribs and laterally extending cross ribs forming the skeleton of the body thereof with a skin of water-proof material about the skeleton. When Europeans first arrived at North America, they found North American natives using such boats wherein the ribs were made of tree branches and the skin stretched over the skeleton was birch-bark. The joints of the birch-bark canoe were sealed with natural gums from the available trees. Since then, such canoes have been made commercially using wood skeletons and canvas skins which were impregnated with a rubber-like water-proof material and of recent years aluminum skeletons have been developed with a rigid fiberglass skin.

Collapsible type boats, such as collapsible canoes, have been known, such as in U.S. Patent 1,614,280 to Churchill, 1927, and British Patent 844,197 to Jones, 1960.

However, as shown in the type of collapsible canoe described by Churchill, a plurality of different functional pieces is required such as in the bow or stern, in order to hold the longitudinal ribs in position. In the case of Churchill, separate end members are provided fitting in a block which is also adapted to receive the longitudinal ribs under tension. It is believed that the various clamping devices as shown in the Churchill patent, as well as the separate bow and stern blocks, leave a lot to be desired as far as easy assembly or disassembly of the collapsible boat, and does not improve the compactability of the once collapsed boat.

The British patent shows a boat of wooden construction in which certain of the wooden members are hinged together and/or clamped together by spring clamps. Again the various components making up the boat does not enhance the compactability thereof, and make carrying of the boat considerably difficult.

It is an aim of the present invention to provide a boat of simple light construction with the fewest number of parts but which can easily be assembled without any tools and which, when disassembled, provides compact, light packages.

A collapsible boat in accordance with the present invention includes a first longitudinal spine member terminating in upwardly curved bow and stern members, a plurality of longitudinal rib members forming the gunwales and stringers, the ends of the gunwales and stringers being joined in opposed pairs and each joined pair is held under tension in brackets provided on the bow and stern members, respectively, of the main beam member, a plurality of transverse members spaced apart including means for retaining the gunwales and stringers in a proper spaced apart position and a skin extending across the so-formed skeleton and attached to the gunwales.

In a more specific embodiment of the present invention, each of the main beam gunwales and stringers is made of sections of detachable separate elongated members adapted to be telescopically engaged end to end.

Having thus generally described the invention, particular reference will now be made to the accompanying drawings wherein:

Figure 1 is a perspective view of a canoe constructed:

in accordance with the present invention, Figure 2 is a top plan view of the canoe without the skin thereon, Figure 3 is a side elevation of the skeleton of the canoe shown in Figure 2, Figure 4 is a vertical cross-section taken on lines IV-IV of Figure 1, Figure 5 is an enlarged fragmentary view of the

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~ILC3 S5~38 detail thereof; and Figure 6 is an enlarged fragmentary view partly in cross-section of a further detail of the construction.

Referring now to the drawings and particularly to Figures 1, 2 and 3, there is shown a canoe having a main beam member 10 made up of detachable end to end sections 10a, 10b, including a bow member 10x and a stern member 10y, a number of elongated longitudinal ribs form stringers 12 and are also made up of individual detachable end to end sections 12a, 12b. The other stringers are numbered 14 and 16, respectively. Further, similar elongated members made up of detachable end to end sections form the gunwales 18. Transverse formers 20, 22, 24, 26, maintain the shape of the stringers and gunwales forming the canoe. Finally, a skin S having channels 35 sewn therein is stretched about the frame or skeleton of the canoe. The channels 35 include open-ings coinciding with the formers 22, 24, 26. Each of the formers 24 can be provided with a cross bar 28.

Referring now to Figure 5, there is shown a U-shaped hook clamp 30 which is fixed to a portion of the main beam 10 at the bow section 10x and stern section 10y by rivets or fasteners 32, a stub member 34 would normally extend between the ends of each pair of stringers 12 or 14 and the stub 34 would be engaged by the hook clamp 30 holding the stringers 12 or 14 both under tension.

The stringers 16 meet the bow and stern sections 10x and 10y of the main beam 10 almost perpendicularly. Accordingly, a U-shaped clamp can be used which engages the stub member 34 extending between the ends of the stringers 16.

The gunwale 18, however, sandwiches the bow member 10x and stern member 10y and can be tied with a suitable loop. Each of the formers 20, 22, 24 and 26 can have pairs of tongs 36 which

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form a U-bracket for engaging a typical stringer 12. The tongs 36 which may be coated with a plastics material retain the various stringers 12, 14 and 16 in position relative to the formers 20, 22 and 24, 26, that is, spaced apart from each other.

The upper ends of the formers 20, 22 and 24, 26 can be provided with a flat end 38 which can engage in a slot 40 in the gunwale members 18. It is also contemplated that the gunwale member 18 can be engaged by a U-shaped bracket mounted to the end of the former 20. For the side wall stringers it may only be necessary to provide one prong 36 to hold the respective stringer 16 in place.

A handle grip means 2 may be provided at each end of the bow and stern members 10x and 10y so as to provide for easy carrying or portage of the canoe when it is assembled. All of the end to end sections may be made of tubular lightweight, cylindrical pipe, preferably of aluminum material, fitted one into the other with a conventional spring-like latch engaging an aperture in the other end of the section.

- In assembling the structure the polyethylene skin is laid on the ground and the bow and stern members 10x and 10y are located in each end of the skin in an upright position. The main beam sections 10a, 10b, etc., are then connected end to end and fitted into each of the bow and stern members 10x and 10y, respectively. The stringers 16 are then assembled end to end and their stub members are then engaged within the U-shaped brackets 31 at the bow member 10x and stern member 10y, respectively. Once the stringers are so placed they will be stressed into a bowed curve, against the skin S. The remaining stringers are then similarly assembled and the ends thereof, i.e., the stub members extending between the ends thereof, are hooked into the hook-shaped brackets 30 at each end, that is at the bow and the stern.

The sections of the gunwales are inserted within the

channel 35 formed in the polyethylene skin S and are then assembled end to end and attached to the bow and stern members 10x and 10y respectively. Formers 20, 22 and 24, 26 are then located by first inserting the upper ends 38 thereof into the slots 40 provided in the gunwales and then pivoting the formers down-wardly until they reach a vertical plane. The stringers are at the same time arranged so that they fit within the U-shaped prongs 36 of the formers 20, 22 and 24, 26. Finally, the cross members 43 and 44, as shown in Figure 1, can be located to keep the gunwales and formers spread apart.

Patent Citations (14)

Publication number	Priority date	Publication date	Assignee	Title
Family To Family Citations				
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US381137A *		1888-04-17		Construction of roofs
US1920130A *	1929-03-16	1933-07-25	F J Kloes Inc	Clamping device
US2053755A *	1935-06-07	1936-09-08	Thomas Henry Wilcox	Boat
US2589087A *	1950-04-22	1952-03-11	Jarvi Reino	Collapsible boat
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US3383719A *	1966-09-06	1968-05-21	Heide Hugo Homan Van Der	Collapsible boat
US3755063A *	1970-03-09	1973-08-28	Xox Corp	Thermoformable laminated structures
US3869743A *	1972-07-14	1975-03-11	Michael A Brown	Kayak
US3834410A *	1973-02-27	1974-09-10	Us Army	Collapsible tent
JPS5712885B2 *	1974-05-21	1982-03-13		
US4110951A *	1977-07-21	1978-09-05	John Padrun	Connecting clip for joining concrete reinforcing bars
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AU582624B2 *	1985-01-24	1989-04-06	Peter James Pool	Collapsible canoe
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US5499594A *	1994-09-29	1996-03-19	Bullock; Donald C.	Collapsible tension-compression variable hull structure

Publication number	Priority date	Publication date	Assignee	Title
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US6371042B1 *	2000-04-26	2002-04-16	Dwight W. Abernethy	Folding kayak
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US7854211B2	2008-09-08	2010-12-21	Ellen S. Rixford	Portable boat in nesting sections, with waterproof fabric cover incorporating a stabilizing keel
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* Cited by examiner, † Cited by third party, ‡ Family to family citation

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US4253209A	1981-03-03	Sail boards
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US4735163A	1988-04-05	Collapsible sail board
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Priority And Related Applications

Priority Applications (2)

Application	Priority date	Filing date	Title
CA262,026A	1976-09-24	1976-09-24	Collapsible boat

Application	Priority date	Filing date	Title
US06/010,360	1976-09-24	1979-02-08	Collapsible boat

Applications Claiming Priority (1)

Application	Filing date	Title
CA262,026A	1976-09-24	Collapsible boat

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