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PORTABLE WATERCRAFT

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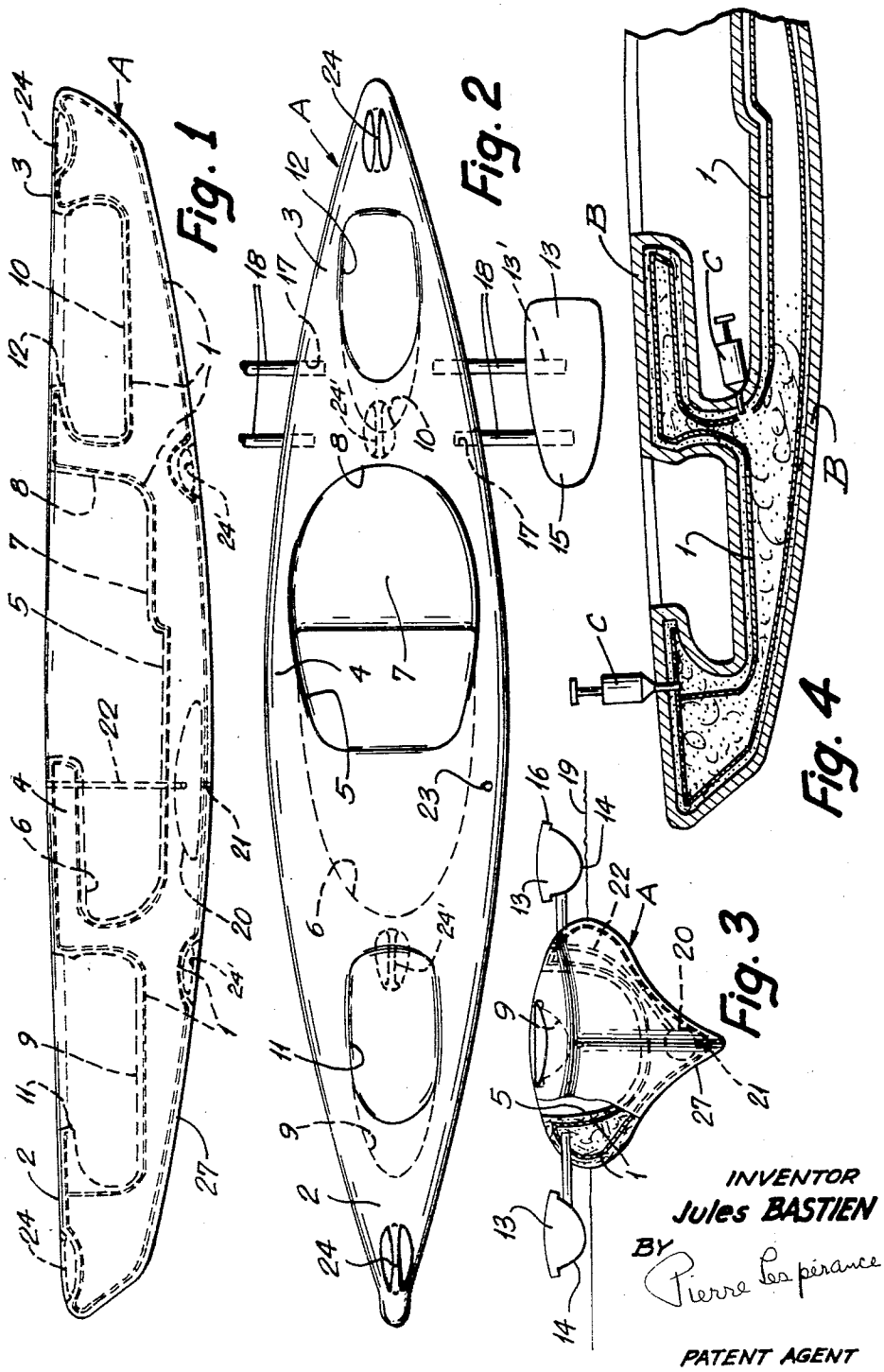


Fig. 1

Fig. 2

Fig. 4

Fig. 3

INVENTOR
Jules BASTIEN
BY Pierre Lespérance
PATENT AGENT

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PORTABLE WATERCRAFT

Jules Bastien, P.O. Box 423, Amos, Quebec, Canada

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The present invention relates to a watercraft and, more particularly, to a watercraft of light weight and portable construction, of the kayac type, and adapted to be propelled by paddle means, such as a double paddle, a single paddle, or a pair of oars.

The main object of the present invention resides in the provision of a watercraft of the character described, which has a high level of buoyancy and, therefore, will not sink when full of water, and can carry a great load, compared to its weight, but is yet of rigid construction and will not break under impact.

Another object of the present invention resides in the provision of a portable watercraft of the character described, which is made of a foam plastic and characterized by the fact that said craft is reinforced by a light inner armature, which confers rigidity to the foam plastic and prevents breakage of the same and, at the same time, is not exposed to water and outside elements whereby the armature cannot be damaged, and the craft, having an external surface entirely made of foam plastic, will require no upkeep, such as painting and the like.

Another object of the present invention resides in the provision of a kayac type portable watercraft of the character described, which is provided with luggage compartments adapted to be normally closed by buoyant covers, said covers serving as lateral stabilizers for the craft when the latter is negotiating on a rough sea.

Another object of the present invention resides in the provision of additional means in the craft of the character described for stabilizing said craft against transverse rolling or tilting movement.

The foregoing and other important objects of the present invention will become more apparent during the following disclosure and by referring to the drawings, in which:

FIGURE 1 is a side elevation of the craft in accordance with the invention;

FIGURE 2 is a top plan view of the same;

FIGURE 3 is a front end elevation of the same partly in cross-section; and

FIGURE 4 is a partial longitudinal section of the mold used for molding the craft and showing also the injection molding means, together with the reinforcing armature in position within the mold.

Referring now more particularly to the drawings in which like reference characters indicate like elements throughout, the craft in accordance with the invention is generally indicated at A and is molded from foam plastic by an injection process. The craft is reinforced by an armature 1, preferably in the form of a screen or of a sheet provided with perforations throughout its surface.

The armature 1 is substantially parallel to and spaced inwardly from all the external and internal surfaces of the craft body so as not to be exposed to external atmospheric elements and to water.

The armature 1 constitutes a shell in the shape of the craft itself, for reinforcing the foam plastic and the latter passes through the perforations or openings of armature 1.

The craft A forms a fore section 2, an aft section 3, and an intermediate section 4, in which is formed a passenger compartment 5 opening at the top of the craft and forwardly extending underneath the top to provide room at 6 for the passenger's legs, the bottom of compartment 5 being raised to form a seat 7, the back wall 8 of the compartment forming a back-rest.

The sections 2 and 3 are provided with a luggage compartment 9 and 10 respectively, opening at the top of the craft by means of openings 11 and 12 respectively, said compartments or cavities extending forwardly and slightly rearwardly of the openings 11 and 12 respectively within the mass of the foam plastic.

Openings 11 and 12 are identical and are adapted to beclosed by a closure member 13, also made of foam plastic throughout and having a transversely curved bottom portion 14 and tapered towards the front end thereof, as shown at 15, said cover members being provided with a laterally protruding flange 16 adapted to fit over the top marginal portion of the openings 11 and 12 to close the compartments 9 and 10 in substantially fluid-tight manner.

These cover members 13 can also be used as lateral stabilizers for the craft. For this purpose, the sides of the craft, rearwardly of the passenger compartment 5, are each provided with two blind bores 17 in which are removably fitted tubes 18, preferably made of rigid plastic, in turn removably fitted at their outer ends within blind bores 13' made in one side of each cover member 13. The cover members 13 thus extend on both sides of the craft, just above the line of flotation 19, as shown in FIGURE 3. Thus, lateral stabilizers may be provided for the craft and, when not required, are simply used as cover members for the compartments 9 and 10, thereby simplifying and reducing the number of elements constituting the equipment of the craft.

When not in use, the tubes 18 may be simply stored in either compartment 5, 9, or 10. Tubes 18 are closed at both ends thereof in order to float on water.

In order to provide additional stability against lateral rolling or tilting movement of the craft, the portion of the craft underneath the passenger compartment 5 is provided with an elongated cavity 20 adapted to be filled with water by means of intake tube 21, in communication with said cavity and opening at the bottom of the craft.

Cavity 20 is further provided with an air escape tube 22, in communication therewith, and extending upwardly therefrom within the mass of the foam plastic on one side of the passanger compartment and opening at the top of the craft.

Tubes 21 and 22 are preferably made of gas-impermeable plastic tubing. The discharge end of the tube 22 is normally plugged in fluid-tight manner by plug 23 before the craft is put on the water, so as to prevent entry of any substantial amount of water within cavity 20. Whenever it is desired to fill up the cavity 20 with water, the plug 23 is simply removed.

The top portion of the craft at the front and back ends thereof is provided with integrally molded handles 24 for manipulating the craft. The craft as shown in the drawing has the general shape of a kayac being symmetrical in its fore and aft sections 2 and 3, having an elongated tapered shape when seen in top plan view, and a smoothly curved bottom keel 27 which protrudes downwardly in the middle section of the craft, as shown in FIGURE 3. However, the craft could have any other shape. Handles 24', similar to handles 24, are formed in the keel 27 to permit grasping the craft in the event of overturning. The craft is made in a very simple manner by injection molding. A complete mold B having an inner shape conforming to the outside and inside surfaces of the craft to be molded and forming a complete mold which is preferably made in two mold sections having a parting joint in the longitudinal central plane of the craft, is closed over the armature 1, maintained therein by suitable bracket means, the mold also inluding suitable cores for making the cavity 20, the tubes 21 and 22 having been positioned in the mold. Then a plastic composition is injected within the mold by suit-

able injection means C, disposed at suitable locations along the mold, to be completely fill the mold with foam plastic which sets within the mold.

Several types of plastic composition for making plastic foam are already known and are suitable for use in the present application. Non-limitative examples are the polyurethane and the polystyrene foams.

Said foams are quite rigid and have dimensional stability, are non-burning, and a smooth glossy outside finish is obtained, which is resistant to water.

However, if the craft was made only of foam plastic, it would not have sufficient resistance to breakage or to impact due to the fact that the craft in accordance with the invention is of the type including cavities for luggage and for the passengers. Therefore, it is the main feature of the present invention to provide a craft made of foam plastic, but reinforced with an inside armature **1**, said armature being protected against outside exposure, so that all the benefit of the foam plastic is retained; that is, non-corrosive, no need of painting, and the like.

The second feature of the present invention resides in the fact that the cover members for the luggage compartments are also used as lateral stabilizers for the craft when the same is negotiating rough seas, whereby eliminating the need of transporting additional stabilizer units.

Another feature of the invention resides in the fact that the boat can be made in a one-step molding operation, thereby considerably reducing the cost of its manufacture.

While a preferred embodiment in accordance with the present invention has been illustrated and described, it is understood that various modifications may be resorted to without departing from the spirit and scope of the appended claims.

What I claim is:

1. A portable watercraft comprising an elongated solid body made of substantially rigid foam plastic and having a main cavity made therein, opening at the top of said body for receiving passengers, and a sheet-like reinforcing member having closely spaced openings throughout its surface and forming a shell completely enclosing an inner space and of an external shape similar to the external shape of said body and forming also a passenger receiving cavity conforming to the passenger receiving cavity of said body, said shell member completely embedded within said foam plastic, and having its external surfaces substantially parallel to the outside surfaces of said body and to the surfaces of said body cavity, said foam plastic extending through said openings.

2. A watercraft as claimed in claim 1, wherein said foam plastic is selected from polyurethanes and polystyrenes.

3. A watercraft as claimed in claim 1, further including upwardly opening hollow compartments made in the foam plastic of said body, water buoyant cover members for closing said compartments, said cover members serving

also as lateral stabilizers for said craft, and rods removably secured to said cover members and to the sides of said craft and laterally extending therefrom for securing said cover members laterally of said craft at a distance therefrom when said cover members are used as lateral stabilizers.

4. A watercraft as claimed in claim 1, further including a water receiving cavity formed in the mass of said foam plastic on the center line of said boat and underneath said passenger receiving cavity, said water receiving cavity having a water intake tube opening at the bottom of said craft and an air outlet tube opening at the top of said craft.

5. A watercraft as claimed in claim 3, wherein said cover members are made of substantially rigid foam plastic.

6. A portable watercraft comprising a body of elongated symmetrical shape providing a fore and an aft section and an intermediate section, said intermediate section having an upwardly opening passenger receiving cavity, partly extending underneath the top of said body, said fore and aft sections, each having an upwardly opening luggage receiving cavity, said body completely made of a rigid foam plastic, and a reinforcing shell member completely enclosing an inner space and having spaced perforations throughout its surface and having external surfaces partly conforming to the external surfaces of said body and a passenger compartment and luggage receiving compartments partly conforming to the surfaces of said passenger cavity and luggage receiving cavities of said body, said shell member being completely embedded in said foam plastic of said body with its surfaces spaced inwardly from the corresponding surfaces of said body, said foam plastic extending through said perforations.

7. A watercraft as claimed in claim 6, further including cover members for closing said luggage receiving cavities, said cover members being made of rigid foam plastic and having an elongated shape, said cover members serving also as lateral stabilizers for said craft and having blind bores in one side thereof and rods removably inserted within said blind bores and removably secured to the sides of said craft and laterally extending therefrom for maintaining said cover members laterally of said craft at a distance therefrom.

8. A watercraft as claimed in claim 6, further including handles formed at the bottom of said body and exposed at the external face thereof.

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