March 6, 1962 R. APPLEGATE 3,023,431

SECTIONAL BOAT

Filed Oct. 10, 1957

3 Sheets-Sheet 1

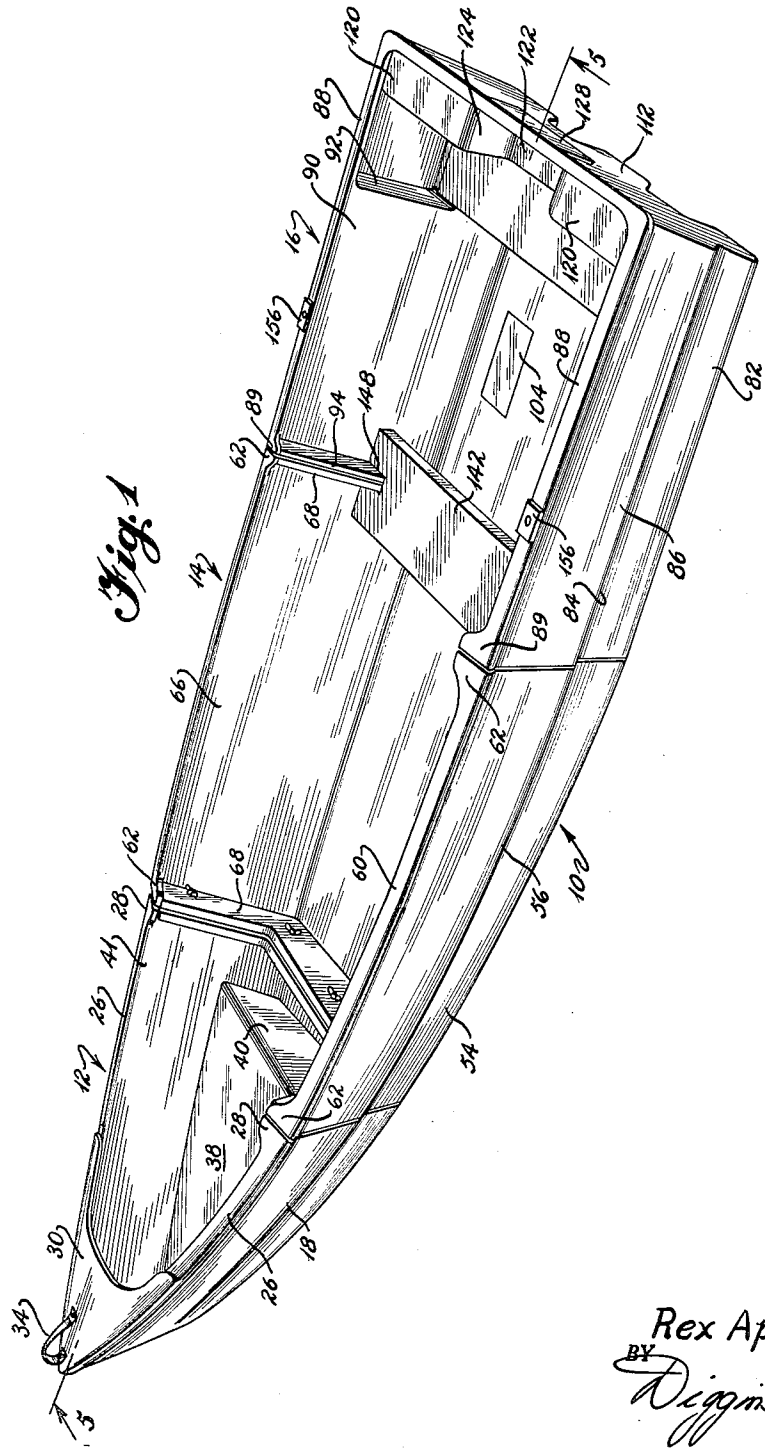


Fig. 1

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Fig. 2

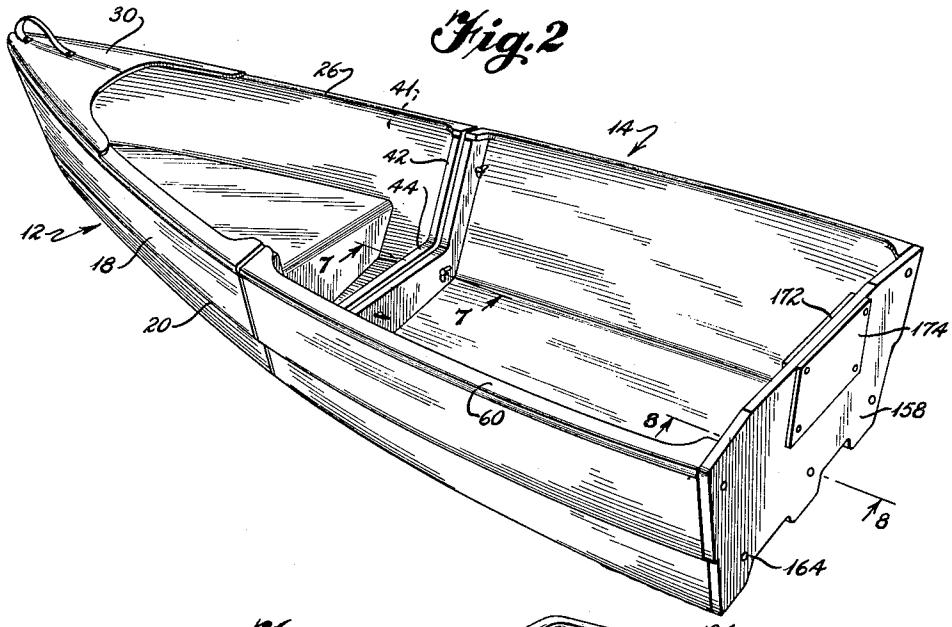
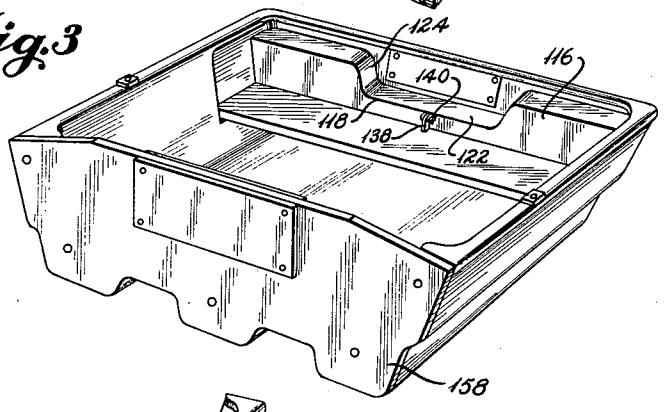


Fig. 3



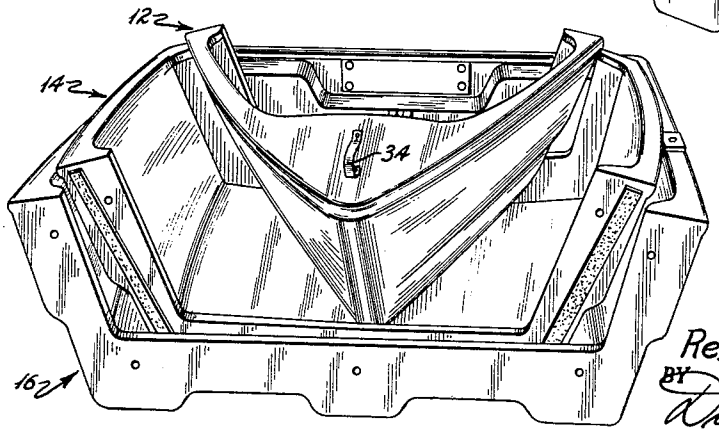


Fig. 4

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SECTIONAL BOAT

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Fig. 5

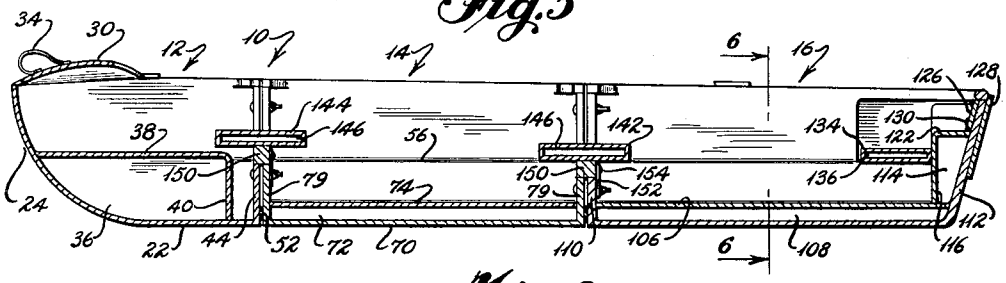


Fig. 6

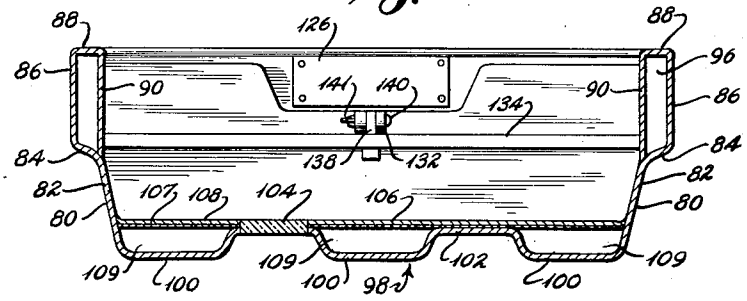


Fig. 7

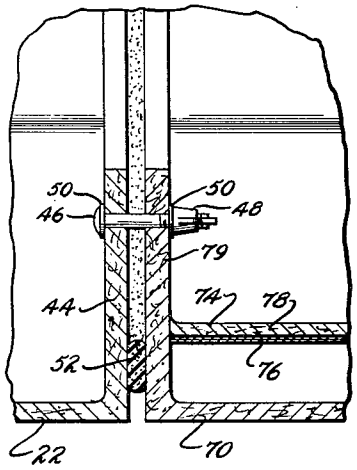
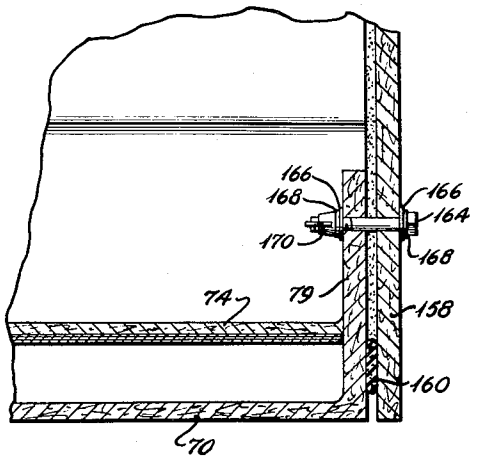


Fig. 8



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3,023,431

SECTIONAL BOAT

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5 Claims. (Cl. 9—2)

This invention relates to a sectional boat, and more particularly to a sectional boat having sections with integral flotation chambers wherein the sections may be detached and nested within one another.

With the advent of modern light weight synthetic plastics and metals sectional boats of various designs have become quite common. One of the difficulties with these boats, however, is that many are not provided with flotation chambers. Thus if the boat should be swamped in heavy seas, or leaks should develop in a storm, the sectional boat could not remain afloat and sustain the passengers.

Other sectional boats have been proposed having flotation chambers therein, but the flotation chambers have been so arranged in the sections that they must be removed to permit nesting of the sections within one another. Such a construction has the disadvantage that the flotation chambers must be re-attached to the sections before the boat is again floated. Further, the flotation chambers have been so located in the sections as to make seating uncomfortable and remove a great deal of space from use by the passengers.

Other previously-proposed sectional boats have had transverse walls formed at both ends thereof extending the full height of the boat across the entire width thereof. When the sections have been assembled in such a sectional boat, these transverse members obstruct the free passage of passengers throughout the length of the boat and prevent the placing of long objects in the bottom of the boat, such as oars, or fishing poles.

According to the present invention, a sectional boat is provided largely eliminating these problems and disadvantages. The sectional boat of the invention includes a plurality of sections, each section having sealed flotation chambers formed integrally in the section and extending adjacent the outer surface of the section. Some flotation chambers are formed integrally with the bottom of the sections, extending lengthwise thereof. Other flotation chambers are formed along the gunwales of the sections, extending down the sides thereof. A further flotation chamber is formed in the stern board of the stern section. These flotation chambers extend only a short distance inwardly from the outer contour or surface of the boat and do not interfere with the nesting of the sections of the sectional boat within one another. Removable seats are provided having sealed flotation chambers formed therein. The sections may be nested within one another to form a small, neat package for transportation or storage.

Further, according to the invention, the adjacent ends of the sections of the sectional boat are substantially open. These adjacent ends of the sections have flanges extending transversely inwardly from the outer surface of the section a short distance from the sides and bottom. Fastening means, such as nut and bolt assemblies, are used to fasten these flanges together at a plurality of spaced points, and a sealing gasket is provided between the flanges to releasably maintain the sections in rigid water-tight engagement. These narrow flanges permit unobstructed passage of passengers from one section of the sectional boat to another, and also permit long objects, such as oars or fishing poles, to be stored in the bottom of the boat.

While all sections of the boat may be joined together to form one united sectional boat the sectional boat of the invention has the further advantage that less than all of the sections may be used to form a shorter boat or raft. A transom or stern board is provided having the outline of the front end of the stern section and may be secured to the front of the stern section in a water-tight engagement to form a substantially rectangular raft. On the other hand, the stern board or transom may be secured to the rear end of a center section which is secured to a bow section, to form a shorter boat consisting of only the bow section and one center section.

Accordingly, it is a primary object of the invention to provide a sectional boat separable into nestable sections with sealed flotation chambers formed integrally therein.

It is a further object of the invention to provide a sectional boat separable into sections which may be nested within one another, each section having integral flotation chambers formed therein adjacent the outer surface of the boat.

It is a further object of the invention to provide a sectional boat formed of sections having substantially open adjacent ends with narrow flanges for the connection of sections together, so as to provide unobstructed passage from one end of the boat to the other.

It is a further object of the invention to provide a sectional boat formed of sections having integral flotation chambers therein, the ends of the adjacent sections being substantially open for unobstructed passage along the entire length of the boat, with a separable transom or a stern board which may be selectively applied to less than all of the sections to provide a smaller boat or a raft.

Further objects and advantages of the invention will become apparent upon reference to the following specification and claims and appended drawings wherein:

FIGURE 1 is a perspective view of a sectional boat constructed according to the invention;

FIGURE 2 is a perspective view of a sectional boat constructed according to the invention and formed from the bow and center sections only;

FIGURE 3 is a perspective view of a raft formed from the stern section of the sectional boat shown in FIGURE 1;

FIGURE 4 is a perspective view of the sectional boat shown in FIGURE 1, with the sections separated and nested together;

FIGURE 5 is a vertical section view taken along the line 5—5 in FIGURE 1;

FIGURE 6 is a vertical section taken along the line 6—6 in FIGURE 5;

FIGURE 7 is a fragmentary vertical section taken along the line 7—7 in FIGURE 2; and

FIGURE 8 is a fragmentary vertical section taken along the line 8—8 in FIGURE 2.

In FIGURE 1 of the drawings, there is shown a sectional boat 10 including a bow section 12, a center section 14 and a stern section 16. If it is desired to increase the length of the boat, additional center sections can be supplied, and a boat consisting of six sections may be readily constructed. The sections may be constructed of various materials, such as plastics, including fiber-glass, and metals, such as aluminum.

The bow section 12 includes two sides 18 each having a longitudinal step 20 extending along the long dimension thereof. These sides are connected by a bottom 22 which is corrugated in the manner shown in FIG. 6. The sides 18 join at the bow 24, and narrow gunwales 26 are secured to the upper edges of sides 18 and have widened portions 28 at the rear thereof. A fore deck 30 is secured to the gunwales 26 and extends therebetween at the forward ends thereof. A hook or eye 34 may be secured to the fore deck 30 for engagement by towing hooks and lines.

A flotation chamber 36 is formed in the lower forward portion of bow section 12 by a deck 38 extending between the sides 18 and a vertical frame 40 joined to the rear edge of deck 38 and to the sides 18.

It will be seen that the rear end of bow section **12** is substantially open. In order to provide a connection for connecting the bow section to other sections of the boat, flanges **42** extend inwardly from both sides **18** and upwardly from bottom **22** at **44**. Holes are provided in the flange at spaced intervals for the passage of bolts **46** which are used in conjunction with wing nuts **48** and washers **50** to attach adjacent flanges of adjacent sections of the sectional boat. A sealing gasket **52** is secured to the flanges **42** and **44** and may be formed of foam rubber, neoprene or plastic material.

The center section **14** includes sides **54** having a longitudinal step formed at **56**. Gunwales **60** are secured to the upper edges of the sides and are widened at **62**. Gunwale flotation chambers are formed beneath each gunwale **60** by inner plates **66** which extend from the gunwales **60** downwardly to the sides **54** at the step **56**, similar to the typical construction of flotation chambers **96** in FIGURE 6, and later described in greater detail.

In order to provide for connection of the ends of center section **14** to the other sections of the sectional boat, flanges **68** extend inwardly from the ends of the sides **54** and serve to seal the ends of the flotation chambers. The bottom **70** of the center section is corrugated as shown in FIGURE 6 to form a plurality of sealed flotation chambers **72** between the bottom **70** and a false bottom or deck **74**. The deck **74** may be formed from a 3-ply piece of plywood **76** and a layer of fiber glass **78** on top thereof, as seen in FIGURE 7. Bottom flanges **79** extend upwardly from both ends of bottom **70** to seal the ends of flotation chambers **72** and to serve as connectors.

The stern section **16** of the sectional boat includes sides **80** having inclined lower portions **82**, a step **84** at the upper edge of the portions **82**, and vertical upper portions **86**. Gunwales **88** are secured to the upper edges of vertical portions **86** and have widened portions **89** at the front ends thereof. As seen in FIGURE 6, inner plates **90** extend from the inner edges of gunwales **88** downwardly to steps **84** along the forward portion of the stern section **16**. Plates **92** seal the rear ends of the spaces between vertical plates **90** and upper side portions **86**. Side flanges **94** extend inwardly from the sides **80** at the forward end of the stern section and close the forward end of the space between the inner plates **90** and the upper portions **86**. Thus, sealed flotation chambers **96** are formed along the forward portion of the gunwales of the stern section.

The bottom **98** of the stern section **16** extends between the sides **80** and has a corrugated shape including lower surfaces **100** and indented surfaces **102**. A transparent window **104** of heavy glass or a plastic material may be positioned in a portion of one of the indented surfaces **102** to provide a means for viewing the bottom from the boat. A deck **106** extends between the sides **80** and is secured as by adhesive, to the indented surfaces **102**. This deck may be formed of a lower layer of 3-ply plywood **107** and a layer of fiber glass **108** on top thereof.

A plurality of flotation chambers **109** are formed between the lower surfaces **100** and the deck **106** and are sealed by means of a bottom flange **110** which extends upwardly from the forward end of bottom **98**. A stern board **112** extends between the sides **80** and seals the stern end of flotation chambers **109**, while also forming one wall of a stern board flotation chamber **114** extending across the width of the stern board. The other walls of this chamber are comprised by a vertical plate **116**, having a central portion indented at **118** (see FIGURE 3), two horizontal top plates **120**, a lower horizontal plate **122**, and two inclined plates **124**.

To provide for clamping an outboard motor in place, an inner plate **126**, and an outer plate **128** are secured to the stern board **112**, as by bolts or rivets **130**. Secured to the center portion of the vertical plate **116** is a seat attaching fixture **132** which has two outstanding ears with registering holes formed therein. A rear seat **134** having a sealed flotation chamber **136** therein may be mounted to extend between the sides **80** of the stern section **16** resting on steps **84** and is secured in place by a plate **138** which extends upwardly from the rear center of the seat between the ears of fixture **132**. A bolt **140** passes through registering holes in the fixture **132** and the plate **138** and is held in place by a nut **141**.

As seen in FIGURE 5, a center seat **142** and a forward seat **144** are also provided and each has a sealed flotation chamber **146** formed therein. These seats have notches **148** formed in the ends thereof for engaging the flanges extending from the sides of the boat sections. A spar **150** extends across the bottom of each seat and rests on the flanges extending from the bottom of the boat sections. Seat mounting plates **152** are secured by bolts or rivets **154** to the spars **150** and extend downwardly with holes registering with the holes formed in the flanges extending upwardly from the bottom of the boat sections. Thus the bolts which extend through the flanges of the boat sections also extend through the plates **152** and clamp the seats in position while securing sections together. Oar locks **156** may be secured to gunwales **88** of the stern section **16** by screws or bolts.

While all three sections of the boat may be attached together to form the boat shown in FIGURES 1 and 5, the sectional boat of the invention may also be assembled to form a shorter boat including only the bow section **12** and the center section **14**, as seen in FIGURE 2. The bow and center sections are fastened together as previously described and the rear of the center section **14** is closed by a removable transom or stern board **158** having a shape to mate with either the rear of the center section **14**, or the front of the stern section **16**. As seen in FIGURE 8, a sealing gasket **160** is secured to the vertical flange **79** extending upwardly from the bottom **70**. Bolts **164** extend through the transom **158** and the side and bottom flanges of the center section **14** and receive rubber washers **166**, steel washers **168** and wing nuts **170**. In order to provide for a mounting of an outboard motor on the two-section boat of FIGURE 2, an inner plate **172** and an outer plate **174** are bolted to the removable transom **158**.

The sectional boat of the invention also may be used to form a substantially rectangular raft as shown in FIGURE 3. This is formed by attaching the removable transom **158** to the front of the stern section **16** and may be employed for uses where such a small sized vessel is desirable.

In FIGURE 4 the three sections of the sectional boat are shown nested within one another. In order to form the nest shown in FIGURE 4, the seats are removed and the sections disengaged by removing the bolts and wing nuts from the mating flanges. The center section then may be placed within the stern section and the bow section placed within the center section. The seats and transom may be placed within the nest, although for clarity they are not illustrated therein. The entire sectional boat occupies only a small volume and may be readily inserted into the rear door of a station wagon or similar conveyance. The boat has abundant sealed flotation chambers which do not interfere with the nesting of the sections of the boat within one another for transportation and storage. The boat possesses a high degree of flexibility in that it may be assembled into a one-section raft or boats having from two to six sections.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiment is therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention between indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced therein.

What is claimed and desired to be secured by United States Letters Patent is:

1. A sectional, nestable boat comprising a bow section having a sealed flotation chamber formed integrally therein in the lower portion thereof, the top of said flotation chamber serving as a seat, said bow section being substantially open at its rear end and having flanges extending transversely inwardly a short distance from its sides and bottom at the rear thereof, at least one center section secured to said bow section and having a plurality of sealed flotation chambers formed integrally with the bottom thereof, said flotation chambers extending lengthwise of said center section and being positioned adjacent the outer surface of said center section, said center section being substantially open at its front and rear ends and having flanges extending transversely inwardly a short distance from the sides and bottom at the front and rear thereof, a stern section secured to the center section and having a plurality of sealed flotation chambers formed integrally with the bottom thereof and positioned adjacent the outer surface thereof, said stern section being substantially open at its front end and having flanges extending transversely inwardly a short distance from the sides and bottom at the front thereof, releasable fastening means joining said flanges of said sections together in rigid relationship, and sealing means between said flanges of said sections to form a water-tight seal therebetween.

2. A sectional, nestable boat comprising a bow section having a sealed flotation chamber formed integrally therein adjacent the outer surface thereof, said bow section being substantially open at its rear end and having flanges extending transversely inwardly a short distance from the sides and bottom at the rear thereof, at least one center section having a plurality of spaced sealed flotation chambers formed integrally with the bottom thereof, said sealed flotation chambers in said center section extending only a short distance inwardly from the outer surface thereof, said center section being substantially open at its front and rear ends and having flanges extending transversely inwardly a short distance from the sides and bottom at the front and rear thereof, a stern section having a plurality of spaced sealed flotation chambers formed integrally with the bottom thereof, said flotation chambers in said stern section extending only a short distance inwardly from the outer surface of said stern section, and means for releasably attaching said flanges of said bow, center and stern sections together in a water-tight engagement.

3. An assemblable sectional boat kit comprising a bow section having a sealed flotation chamber formed integrally therein in the lower portion thereof, said bow section being substantially open at its rear end and having flanges extending transversely inwardly a short distance from its sides and bottom at the rear thereof, at least one center section having a plurality of transversely-spaced sealed flotation chambers formed integrally with the bottom thereof and extending lengthwise thereof, said center section having sealed flotation chambers formed integrally with both gunwales thereof, said center section being substantially open at its front and rear ends and having flanges extending transversely inwardly a short distance from the sides and bottom at the front and rear thereof, a stern section having a sternboard with a sealed flotation chamber formed integrally therein, said stern section having a plurality of transversely-spaced sealed flotation chambers formed integrally with the bottom thereof and extending lengthwise thereof, said stern section having sealed flotation chambers formed integrally with both gunwales thereof, said stern section being substantially open at its front end and having flanges extending transversely inwardly a short distance from the sides and bottom at the front thereof, means for releasably attaching said flanges of said bow, center and stern sections together in water-tight engagement, a plurality of seats having notches formed in their ends for engagement by said flanges, said seats having sealed flotation chambers formed therein, and a transom having the shape of the front end of said stern section for selective attachment to one of said sections.

4. A sectional, nestable boat comprising a bow section having a sealed flotation chamber formed integrally therein, said bow section being substantially open at its rear end and having flanges extending transversely inwardly a short distance from its sides and bottom at the rear thereof, at least one center section having a plurality of transversely-spaced sealed flotation chambers formed integrally with the bottom thereof and extending lengthwise thereof, said center section further having sealed flotation chambers formed integrally with both gunwales thereof, said center section being substantially open at its front and rear ends and having flanges extending transversely inwardly a short distance from the sides and bottom at the front and rear thereof, a stern section having a sternboard with a sealed flotation chamber formed integrally therein, said stern section having a plurality of transversely-spaced sealed flotation chambers formed integrally with the bottom thereof and extending lengthwise thereof, said stern section further having sealed flotation chambers formed integrally with both gunwales thereof, said stern section being substantially open at its front end and having flanges extending transversely inwardly a short distance from the sides and bottom at the front thereof, releasable fastening means joining said flanges of said sections together in rigid relationship, and sealing means between said flanges of said sections to form a water-tight seal therebetween.

5. An assemblable sectional boat kit comprising a bow section having a sealed flotation chamber formed integrally therein in the lower portion thereof, said bow section being substantially open at its rear end and having flanges extending transversely inwardly a short distance from its sides and bottom at the rear thereof, at least one center section having a plurality of transversely spaced sealed flotation chambers formed integrally with the bottom and extending lengthwise thereof, said center section having sealed flotation chambers formed integrally with both gunwales thereof, said center section being substantially open at its front and rear ends and having flanges extending transversely inwardly a short distance from the sides and bottom at the front and rear thereof, a stern section having a sternboard with a sealed flotation chamber formed integrally therein, said stern section having a plurality of transversely spaced sealed flotation chambers formed integrally with the bottom and extending lengthwise thereof, said stern section having sealed flotation chambers formed integrally with both gunwales thereof, said stern section being substantially open at its front end and having flanges extending transversely inwardly a short distance from the sides and bottom at the front thereof, means for releasably attaching said flanges of said bow, center and stern sections together in water-tight engagement, and a plurality of seats having notches formed in their ends for engagement by said flanges, said seats having sealed flotation chambers formed therein.

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