March 31, 1959 J. W. FITZGERALD 2,879,525

SECTIONAL BOAT

Filed May 24, 1956

Fig. 1

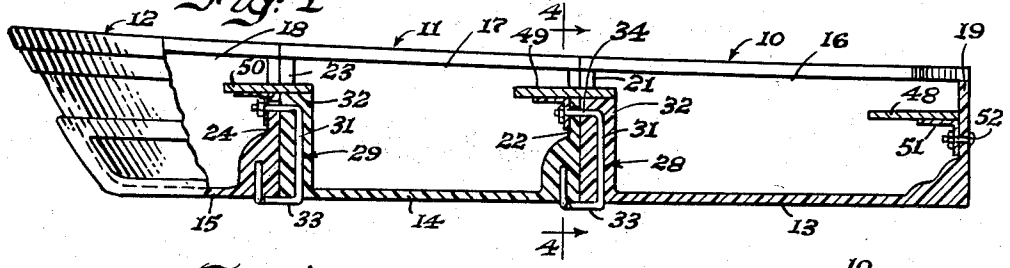


Fig. 2

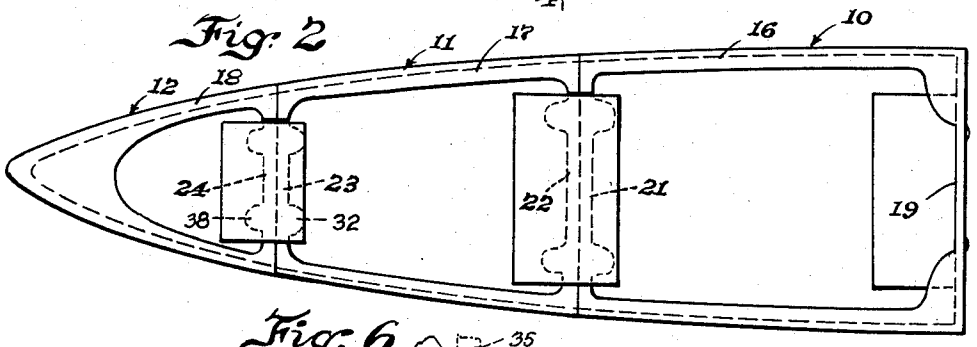


Fig. 6

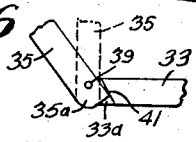


Fig. 3

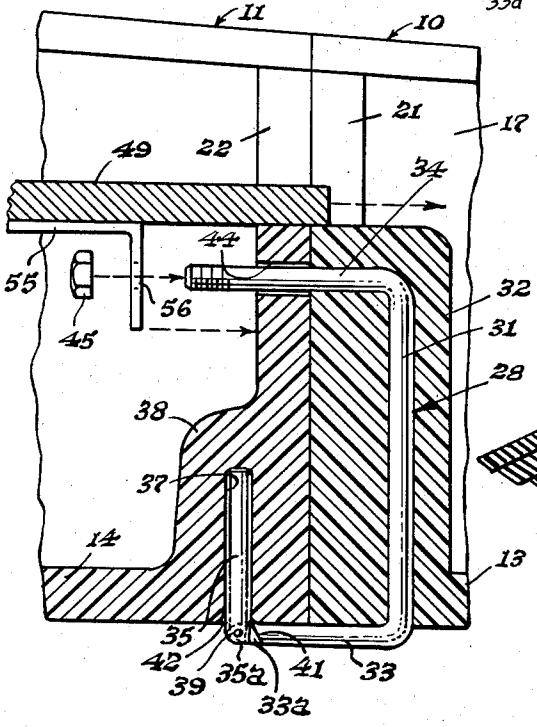


Fig. 4

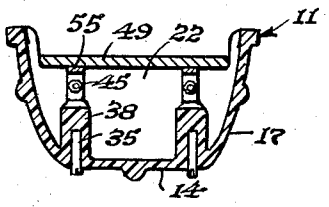
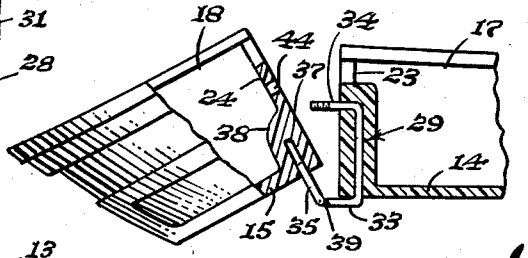


Fig. 5



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SECTIONAL BOAT

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Application May 24, 1956, Serial No. 586,982

11 Claims. (Cl. 9—2)

This invention relates to boats and more particularly to a sectional boat having improved means for detachably connecting the sections together.

An important object of this invention is to provide a sectional boat which may be easily and rapidly assembled and disassembled to permit compact storage and transportation.

Another object of this invention is to provide a sectional boat having improved means for detachably securing the sections together, which securing means is of simple construction adapted to be economically manufactured and installed on the boat during fabrication of the latter.

Another object of this invention is to provide a sectional boat in which the means for detachably securing the sections together is rugged and durable in use and arranged to permit visual inspection thereof after assembling the sections to determine whether the adjacent sections are properly joined.

These, together with various ancillary objects and advantages of this invention will be more readily appreciated as the same becomes better understood by reference to the following detailed description when taken in connection with the accompanying drawings wherein:

Figure 1 is a longitudinal sectional view through the boat and illustrating the sections in assembled relation.

Fig. 2 is a top plan view of the boat;

Fig. 3 is an enlarged fragmentary longitudinal sectional view through a pair of adjacent sections of the boat and illustrating the latter in a partially assembled condition.

Fig. 4 is a fragmentary sectional view taken on the plane 4—4 of Fig. 1;

Fig. 5 is a fragmentary view of the boat with parts broken away and shown in section to illustrate the method of assembling the sections; and

Fig. 6 is a fragmentary enlarged view of a portion of the clamp for detachably connecting the sections of the boat.

The boat of the present invention is formed in a plurality of separable sections to permit compact storage and transportation, which sections are adapted to be detachably secured together to form a relatively elongated boat. As illustrated herein, the boat is formed in three sections designated **10**, **11** and **12**, which sections are preferably so shaped and dimensioned as to permit nesting of one section in another section. For this purpose, the rear section **10** is formed relatively wider and longer than the mid-section **11** to permit nesting of the mid-section in the rear section, and the forward section **12** is formed narrower and shorter than the mid-section to permit nesting of the forward section in the mid-section.

The boat may be formed of any suitable material but is particularly adapted to be formed of laminated plastic or the like. The sections **10–12** of the boat each have bottoms designated **13–15**, respectively, and upstanding sides designated **16–18**. A transom **19** is provided at the rear end of the rear section **10**. A bulkhead is provided at the end of each section which mates with

an adjacent section. As illustrated in Fig. 2, a bulkhead **21** is formed at the forward end of the rear section **10**; bulkheads **22** and **23** are formed at the rear and forward ends of the mid-section **11**, and a bulkhead **24** is formed at the rear end of the forward section **12**. The bulkheads extend between the side walls of the respective sections to reinforce the latter and form substantially watertight compartments therein.

A plurality of generally U-shaped members are provided for detachably securing the adjacent ends of the sections together, which members are arranged to clamp together the bulkheads of each adjacent pair of sections. In the specific form illustrated, a pair of laterally spaced U-shaped members **28** are mounted on the forward bulkhead **21** of the rear section and a pair of laterally spaced U-shaped members **29** are mounted on the forward bulkhead on the intermediate section **11**. The U-shaped members are similarly shaped and each includes a web portion **31** which extends upwardly from a point adjacent the bottom of the respective section and is preferably enclosed in a reinforcing rib **32** formed on the bulkhead. The U-shaped members may be mounted on the respective bulkheads in various different ways depending in part upon the manner in which the boat sections are fabricated. For example, laminated plastic boats are generally hand fabricated over a mold by forming pliable sheets over the mold and bonding the successive layers together with a suitable plastic material. When the boats are fabricated in this manner, the U-shaped members can be inserted into the bulkheads while fabricating the bulkheads and reinforcing ribs **32** from the aforedescribed pliable sheets and plastic bonding material. Each U-shaped member also includes a lower leg portion **33** which, for reasons set forth more fully hereinafter, is arranged to underlie the bottom of the respective section and extend longitudinally thereof to a point beyond the end of the section. The upper leg **34** of each U-shaped member also extends longitudinally of the section to a point beyond the end thereof, as is clearly shown in Figs. 1 and 3. A locking pin **35** is mounted on the free end of the lower leg portion **33** and arranged to extend upwardly therefrom in spaced relation to the bulkhead in which the member is mounted. The adjacent section is formed with an upwardly extending socket **37** in the bottom thereof adapted to slidably receive the locking pin **35** to lock the sections adjacent the lower end thereof against axial separation. A reinforcing rib **38** is formed on the bulkhead of the adjacent section around the socket **37** to reinforce the latter.

In order to facilitate assembly of the sections of the boat, the locking pin **35** is mounted for vertical pivotal movement on the lower leg **33** of the U-shaped member for movement in a plane extending longitudinally of the boat. The locking pin may be conveniently slotted at its lower end to form spaced ears **35***a* for the reception of the tongue **33***a* formed on the lower leg **33** of the U-shaped member. A pivot pin **39** extends through the ears **35***a* and tongue **33***a* to pivotally interconnect the locking pin **35** to the lower leg **33**. A stop is provided to limit pivotal movement of the pin **35** away from the bulkhead on which the U-shaped member is mounted. One suitable form of stop is illustrated in Figs. 3 and 6 and includes a shoulder **41** formed on the end of the lower leg **33** at its juncture with the ear **33***a* and adapted to engage the ears **35***a* on the locking pin **35** to limit outward swinging movement of the latter. The shoulders **41** on each of the U-shaped members are arranged to maintain the respective pins **35** at the same preselected angle such as shown in Fig. 5, to facilitate insertion of the pins **35** into the sockets **37** on the adjacent section. The sockets **37** may also be flared slightly at their lower

ends, as indicated at 42, to guide the locking pins into the respective sockets.

The bulkheads such as 22 and 24, in which the sockets 37 are formed, are also provided with openings 44 arranged to receive the upper leg portion 34 of the U-shaped members when the adjacent sections are in axial alignment. A suitable fastener, such as a nut 45 adapted to be threadedly received on the upper leg 34, is provided for drawing the bulkheads of the adjacent sections together to firmly clamp the sections to each other.

A plurality of seats 48, 49 and 50 are provided in the boat and preferably removably mounted thereon to permit nesting of the sections when the latter are disassembled. The rear seat 48 is mounted by a bracket 51 and fasteners 52 on the transom 19. In accordance with the present invention, the intermediate and forward seats 49 and 50, respectively, are mounted on the upper legs 34 of the U-shaped members and detachably secured thereon by the fasteners 45. As best illustrated in Fig. 3, a pair of L-shaped brackets 55 are affixed to the seats and have an opening 56 therein adapted to receive the end of the upper leg portion 34 of the U-shaped member. The fastener 45 thus clamps the bracket against the adjacent bulkhead to detachably secure the seat thereon. The bulkheads preferably extend from the bottom wall of the respective sections upwardly to a level just below the seats 49 and 50 and the latter are preferably arranged to overlie the bulkheads and the upper ends of the reinforcing ribs 32 whereby an occupant may sit on the seats 49 and 50 and face either forward or aft.

From the foregoing it is thought that the construction and mode of assembly of the sectional boat will be readily understood. When the sections are disassembled, the seats 48–50 are removed and one section, such as section 11, is adapted to nest in section 10 while the other section 12 is arranged to nest in the section 11 to thereby provide a compact arrangement to facilitate storage and transportation. When assembling the sections 10–12, the locking pins 35 are pivoted outwardly against the stops 41 so as to thereby extend upwardly and outwardly at a preselected angle from the bulkhead of the section on which the pins are mounted. The adjacent section such as section 18 shown in Fig. 5 is then longitudinally inclined until the sockets 37 therein are aligned with the locking pins 35. In this position, it is apparent that the bulkhead such as 24 of the adjacent section is inclined away from the upper leg portion 34 of the U-shaped member so that the adjacent section may be moved onto the locking pins. When the locking pins 35 are completely seated in the sockets 37, the sections are then pivoted about the pivot pins 39 to bring the sections into axial alignment. The upper leg portion 34 of the U-shaped members then move through the aligned openings 34 in the bulkhead of the adjacent section, sufficient clearance being provided therebetween to permit the upper legs 34 to pass freely therethrough. The seat bracket 55 is then positioned on the upper leg portions 34 and the nuts 45 threaded thereon to clamp the seats onto the U-shaped members and to clamp the adjacent sections of the boat together. This same procedure is repeated when joining each of the adjacent sections.

It is thus apparent that the adjacent sections may be selectively assembled and disassembled and the seats attached or removed by merely threading or unthreading the locking nuts 45. Since the lower legs of the U-shaped members underlie the bottom of the boat, the boat can be inspected after assembly to determine whether the locking pins are properly inserted into the respective sockets to clamp the sections together. Further, the lower leg portions 33 of the U-shaped members extend across the joint between the adjacent sections at the underside of the boat so as to protect the joint against striking obstructions during use of the boat.

The U-shaped members clamp the sections together adjacent the bottom of the sections and also at a point spaced above the bottom and thus provide upper and lower locking means. Since the upper and lower locking means are integrally connected by the web portion 31 of the U-shaped members, accurate spacing therebetween is assured. This greatly facilitates fabrication of the boat sections in such a manner as to permit interchanging of one section for a similar section, in the event one section of the boat is damaged, and also serves to more evenly distribute the stresses on the bulkheads.

When disassembling the boat, it is only necessary to remove the nuts 45 and reverse the procedure followed in assembling the sections. The U-shaped members 28 in one section such as 10 are preferably laterally spaced apart a different distance than the U-shaped members 29 in the adjacent section 11 which is arranged to be nested therein so that the projecting ends of the leg portion of the U-shaped members on one section do not engage the reinforcing ribs around the U-shaped members on the adjacent section, when the sections are nested. In the specific arrangement illustrated in Fig. 2, the U-shaped members 29 are spaced apart a distance such as to be received between the reinforcing ribs 32 around the web portions of the U-shaped members 28 in the section 10 when the sections are nested.

I claim:

1. A sectional boat comprising a plurality of sections adapted to be disposed in end-to-end relation, one of said sections having a vertically extending socket formed in the bottom adjacent one end thereof, a pin adapted to slidably extend into said socket from the bottom of said one section to be snugly received therein, means on an adjacent section for mounting said pin for vertical pivotal movement in a plane extending longitudinally of said boat, and means for clamping the adjacent sections together at a point spaced above the bottom of the boat.

2. A sectional boat comprising a plurality of sections adapted to be disposed in end-to-end relation, one of said sections having a member rigidly affixed thereto and extending longitudinally of the section to a point beyond one end thereof, a pin mounted on the projecting end of said member for vertical pivotal movement in a plane disposed longitudinally of the section, the adjacent section having a vertically extending socket formed in the bottom thereof adapted to slidably receive said pin, and means for clamping the adjacent sections together at a point spaced above the bottom of the boat.

3. The combination of claim 2 wherein said member underlies the bottom of the boat at the juncture of said sections.

4. A sectional boat comprising a plurality of sections adapted to be disposed in end-to-end relation, a U-shaped member rigidly affixed to one of said sections with the web portion thereof extending upwardly from a point adjacent the bottom of said one section and the leg portions extending longitudinally to a point beyond one end of said one section, a pin mounted on the lower leg portion of said member for vertical pivotal movement in a plane disposed longitudinally of said boat, the adjacent section having a vertically extending socket formed in the bottom adjacent one end thereof to slidably receive said pin, and means on the upper leg of said member for engaging said adjacent section to clamp said sections together.

5. A sectional boat comprising a plurality of sections adapted to be disposed in end-to-end relation, a U-shaped member rigidly affixed to one of said sections with the web portion thereof extending upwardly from a point adjacent the bottom of said one section and the leg portions extending longitudinally to a point beyond one end of said one section, a pin mounted on the lower leg portion of said member for vertical pivotal movement in a plane disposed longitudinally of said boat,

the adjacent section having a vertically extending socket formed in the bottom adjacent one end thereof to slidably receive said pin, said adjacent section having an opening in the end thereof adapted to receive the upper leg of said member, and a fastener on said upper leg for engaging said adjacent section to clamp the latter to said one section.

6. The combination of claim 5 including a seat, and a mounting bracket on said seat adapted to be mounted on the upper leg of said member to be removably supported thereby.

7. The combination of claim 5 including stop means on said lower leg portion engageable with said pin for limiting pivotal movement of said pin away from said one section to support said pin at a position extending upwardly and outwardly from said one section.

8. A sectional boat comprising a plurality of sections each having a bottom and sides extending upwardly from said bottom, said sections being adapted to be disposed in end-to-end relation and each having a transverse bulkhead adjacent the abutting ends thereof, a U-shaped member rigidly affixed to the bulkhead in one of said sections with the web portion thereof extending upwardly from a point adjacent the bottom of the section and the leg portions extending longitudinally to a point beyond the end of that section, the adjacent section having an upwardly extending socket formed in the bottom thereof, means on the lower leg of said member adapted to extend into said socket to join the adjacent sections adjacent the bottom, said adjacent section having an opening in the bulkhead thereon adjacent said one section for receiving the upper leg of said member, and a fastener on the end of the upper leg of said member for engaging said last mentioned bulkhead to clamp the adjacent sections together at a point spaced above the bottoms thereof.

9. The combination of claim 8 wherein the lower leg of said member underlies the bottom of the section to which it is affixed at the point of juncture of that section with an adjacent section.

10. The combination of claim 8 including a seat, and a mounting bracket on said seat adapted to be removably mounted on the upper leg of said member for supporting said seat thereon.

11. A sectional boat comprising a plurality of sections each having a bottom and upstanding sides, said sections being adapted to be disposed in end-to-end relation during use as a boat and shaped and dimensioned to be nested in an adjacent section for compact storage and transportation, said sections each having a transverse bulkhead adjacent the mating ends thereof, a first pair of U-shaped members affixed to the bulkhead of one section which abuts an adjacent section, a second pair of U-shaped members affixed to the bulkhead of said adjacent section remote from said one section, said U-shaped members having the web portions thereof extending upwardly from adjacent the bottom of the respective sections, reinforcing ribs formed on the inner faces of said bulkheads around the web portions of said members, said members having spaced leg portions extending longitudinally of the sections beyond the ends thereof, said members being laterally spaced apart on the respective sections to be laterally staggered from the members on the adjacent section when said sections are nested one within the other, an upwardly extending pin on the lower leg of each of said members, the ends of the sections adjacent the sections in which said members are mounted having upwardly extending sockets formed in the bottoms thereof for receiving said pins, and fasteners on the upper legs of said members for clamping the adjacent sections together.

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