

Sept. 23, 1947.

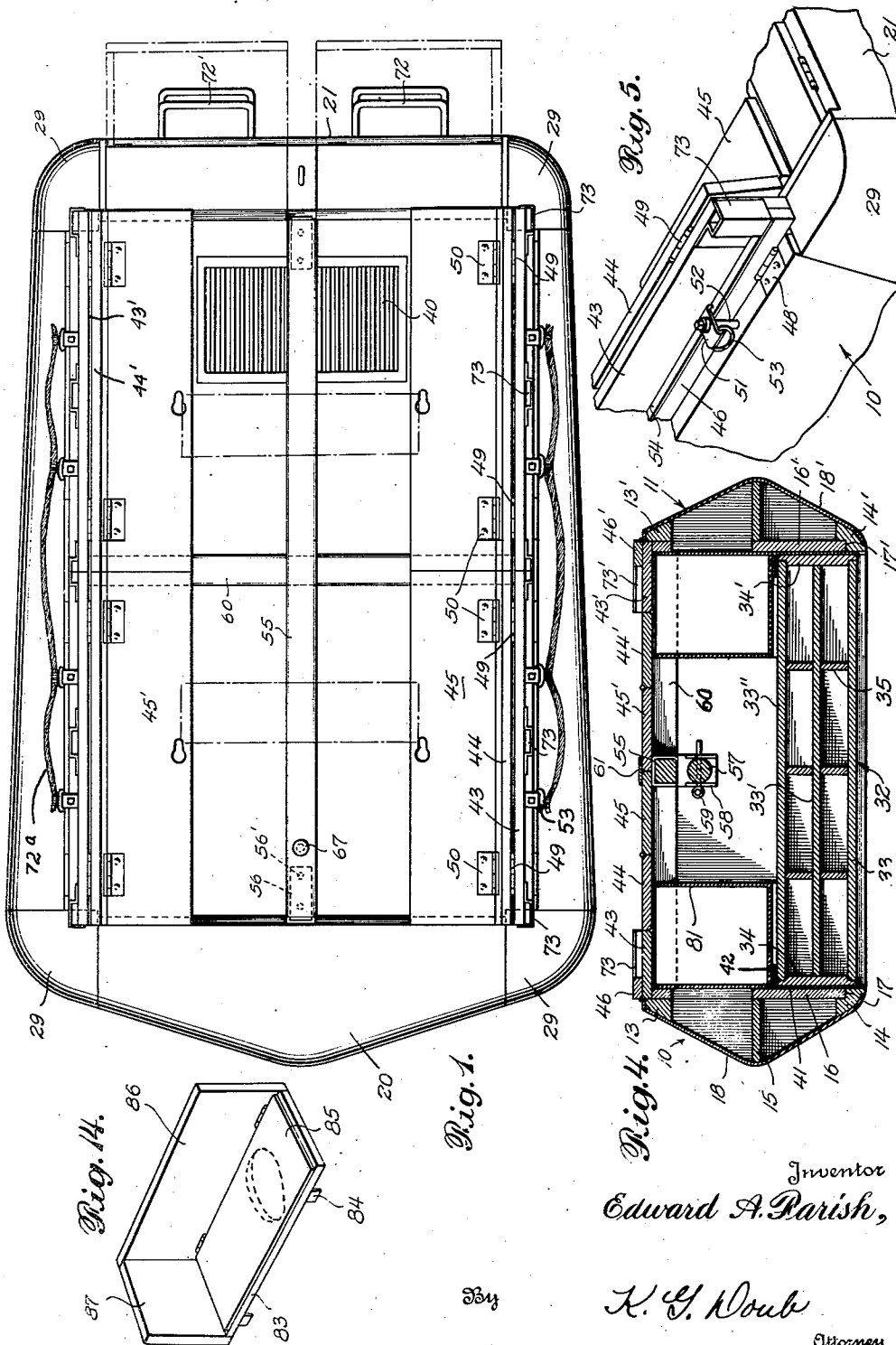
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2,427,772

WATERCRAFT

Filed Jan. 4, 1944

5 Sheets-Sheet 1



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5 Sheets-Sheet 2

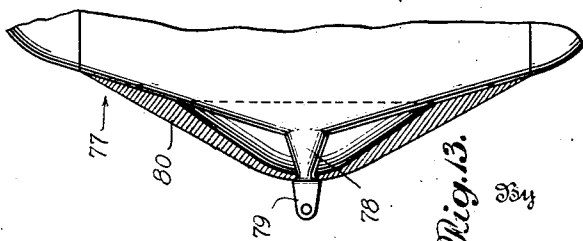
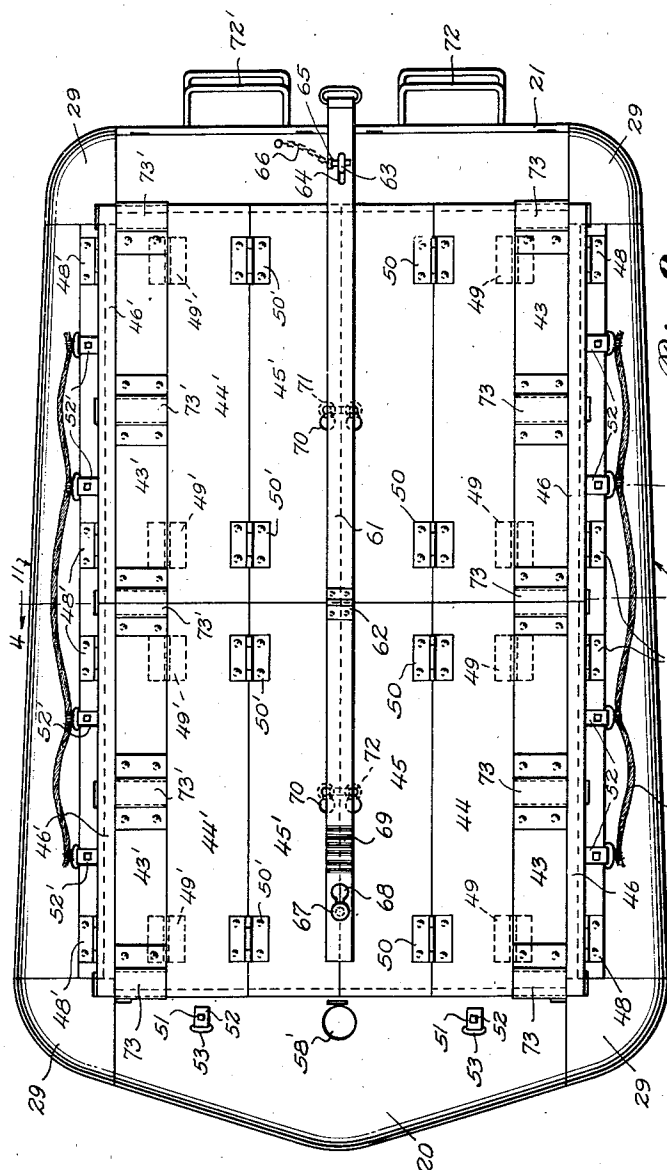


Fig. 2.

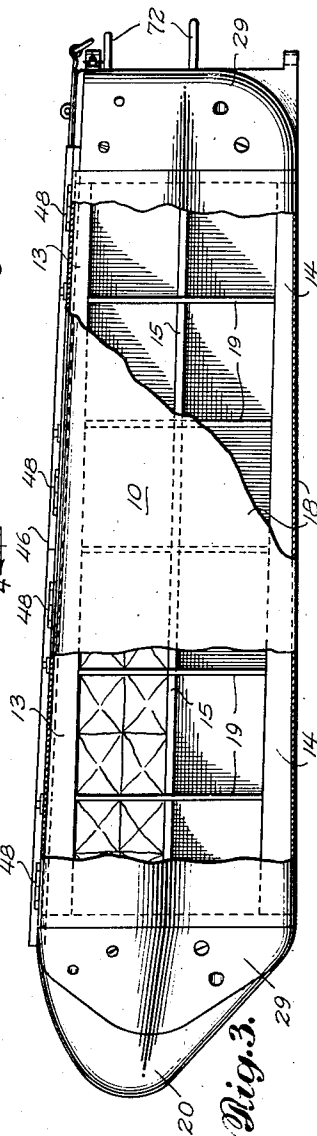


Fig. 3.

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5 Sheets-Sheet 3

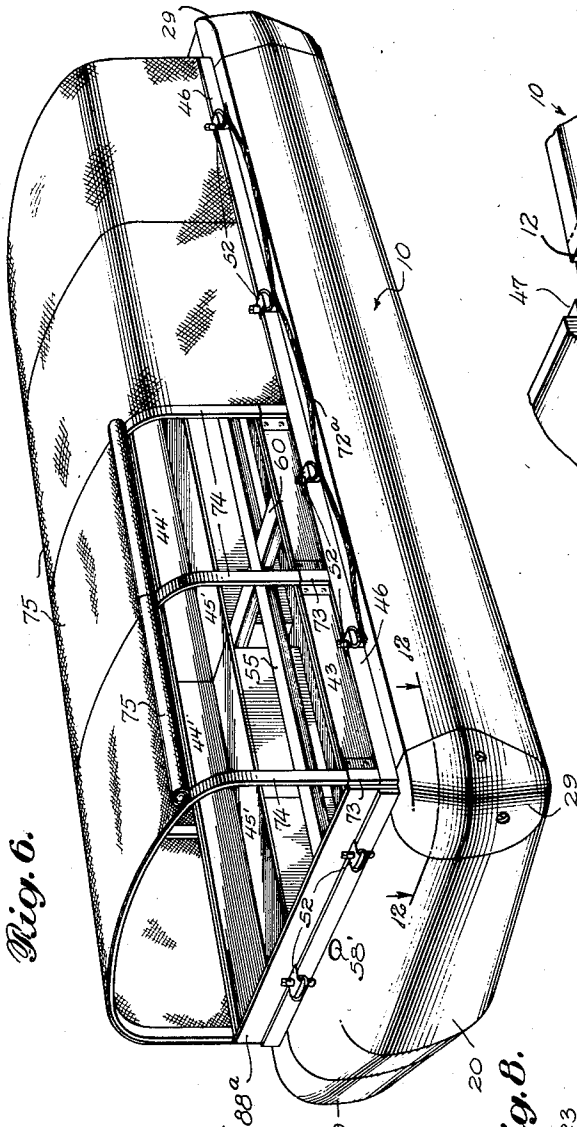


Fig. 6.

Fig. 12.

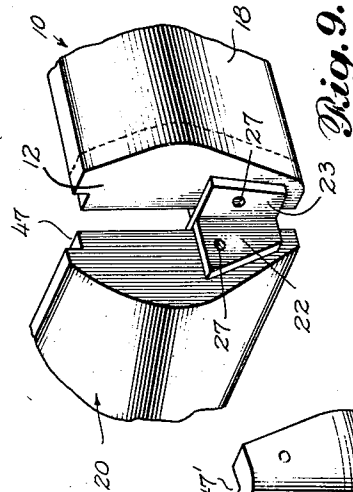
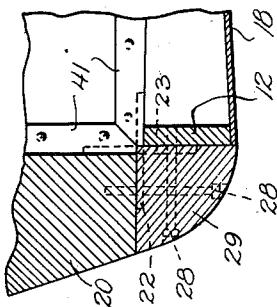


Fig. 9.

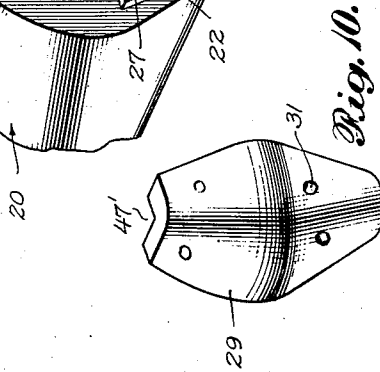


Fig. 10.

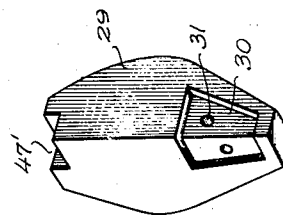


Fig. 11.

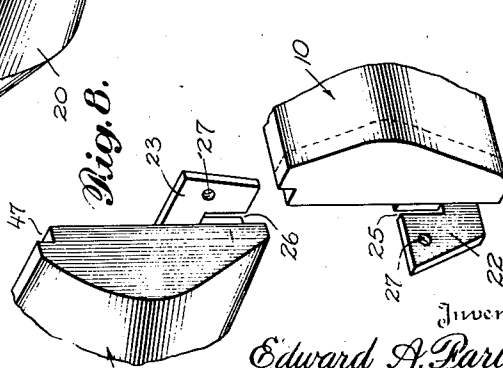


Fig. 7.



Fig. 8.

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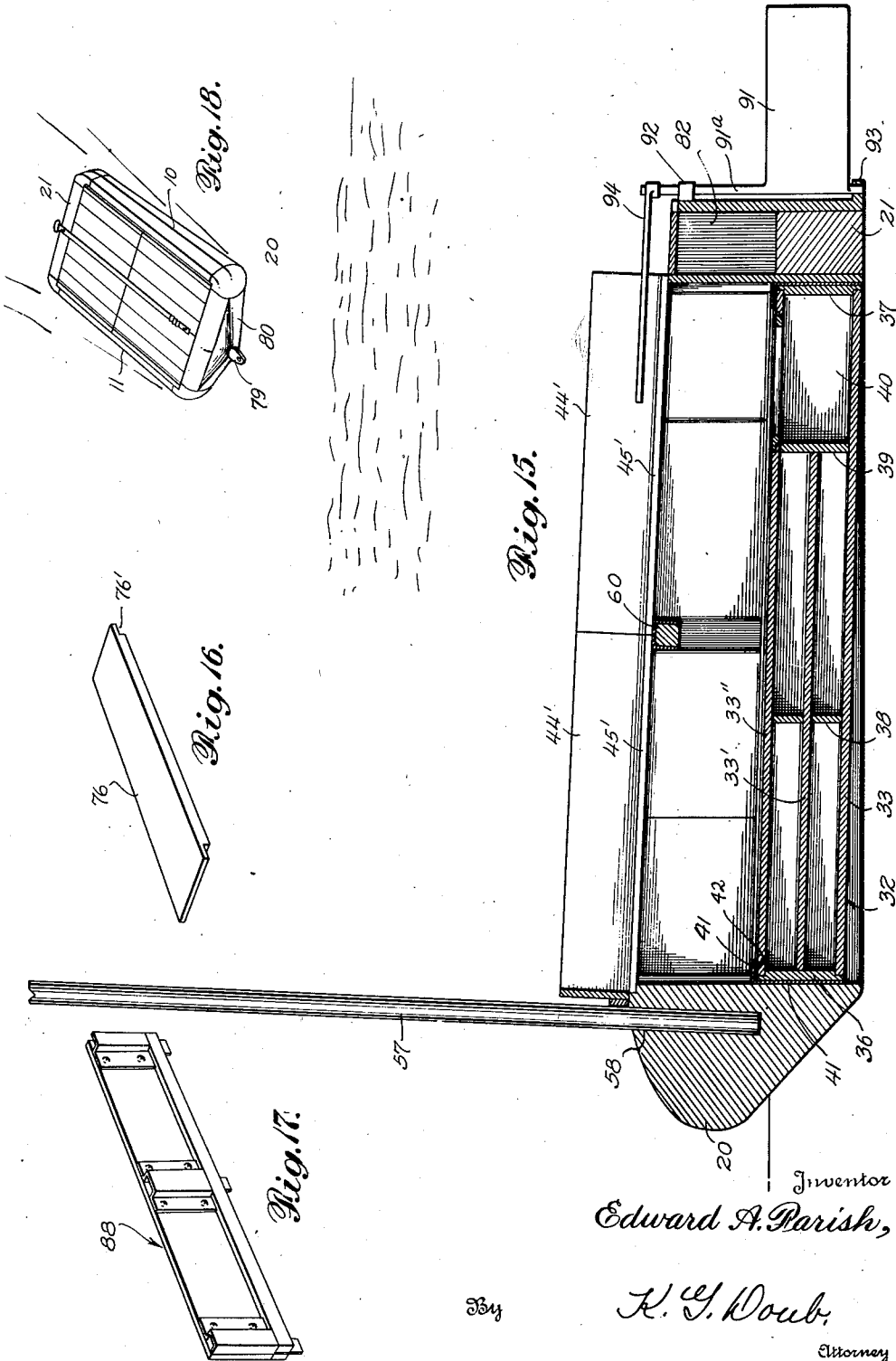
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5 Sheets-Sheet 4



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Fig. 20.

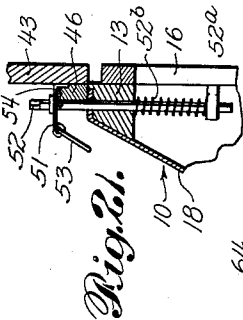
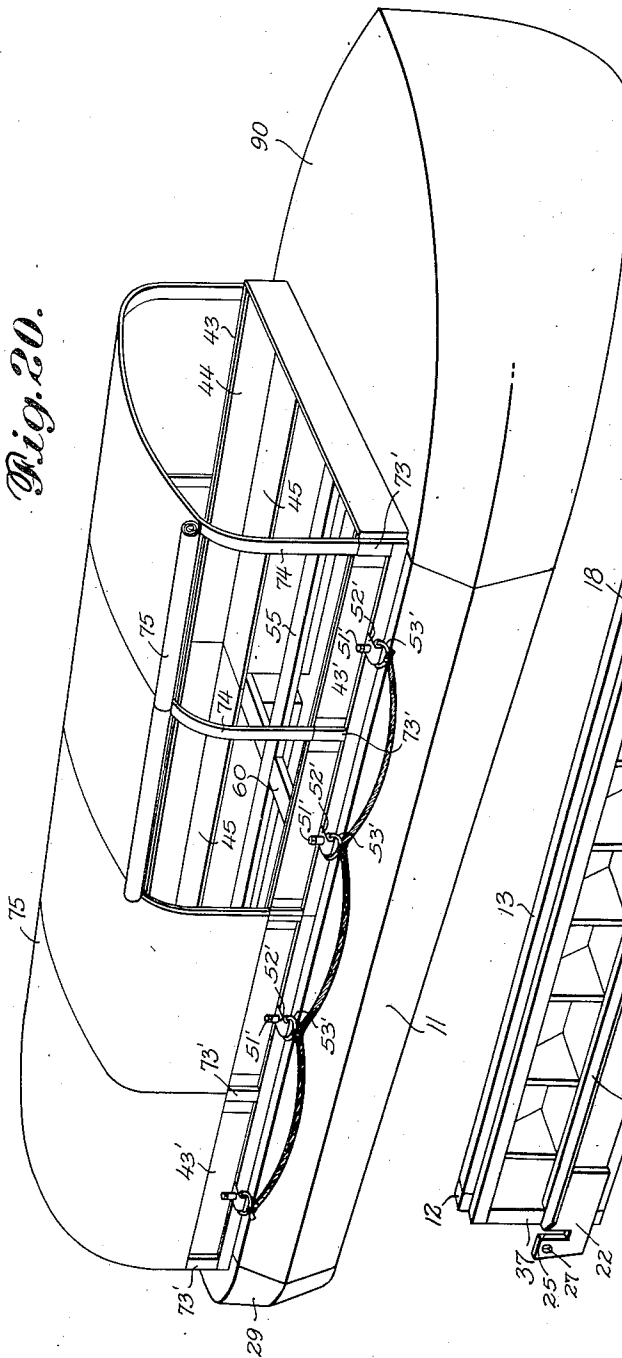


Fig. 19.

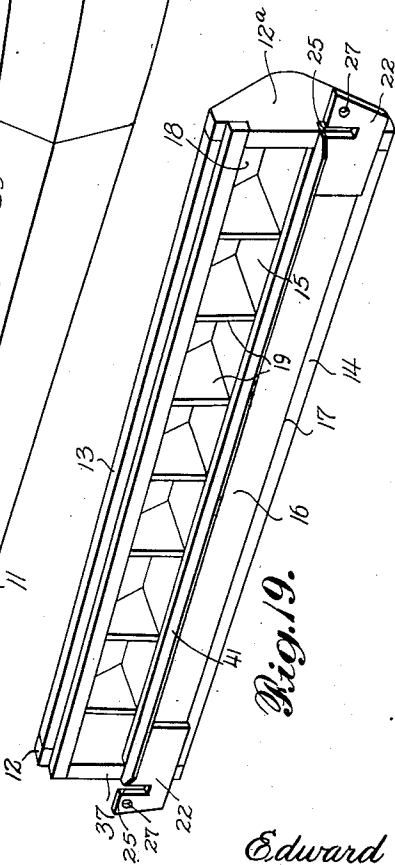
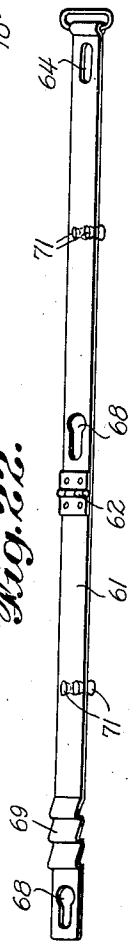


Fig. 22.



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WATERCRAFT

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11 Claims. (Cl. 9—3)

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This invention relates to water craft, and includes among its objects, to provide:

A boat of simple, low cost construction capable of being used to advantage either as a pleasure craft or for general utility;

A boat made of prefabricated units capable of being assembled in knock-down relation, resulting in a craft of general utility which, due to its particular construction, may be tightly closed and sealed against weather when not in use, and may be quickly opened and placed in condition for service, there being a maximum of storage space and passenger accommodations;

A boat which may be used as a life raft or as a general utility boat, and which when used as a raft may also serve as a carrier which can be dropped overboard from a ship or plane in the delivery of freight, mail and the like;

A water craft made of parts capable of being readily assembled by unskilled labor, and also capable of being taken apart and stored during periods of non-use, as for example during the winter months, the cost of maintenance being held to a minimum due to the fact that the boat requires no housing facilities;

A boat which may be used by people in all walks of life on small and large streams, and which may be readily transported any distance in knock-down condition and quickly assembled for use at its destination;

And to generally improve and render more serviceable water craft of the general utility type.

The foregoing and other objects and advantages will become apparent in view of the following description taken in conjunction with the drawings, wherein:

Figure 1 is a top plan view of a boat in accordance with the invention with the hinged combined seat and hatch covers raised, exposing the interior of the boat;

Fig. 2, a view similar to Fig. 1 with the covers battened down and the boat sealed against entrance of water;

Fig. 3, a view in side elevation and partly broken away;

Fig. 4, a transverse section taken substantially on the line 4—4, Fig. 2;

Fig. 5, a fragmentary perspective view of the rear left hand corner of Fig. 1;

Fig. 6, a view in perspective of the boat as shown in Fig. 1, with the deck cover installed;

Figs. 7 and 8, fragmentary perspective views of the adjacent interlocking ends of the side and end members of the hull;

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Fig. 9, a view in perspective of the parts of Figs. 7 and 8 in assembled relation;

Figs. 10 and 11, outer and inner views in perspective of one of the corner pieces which are applied over the interlocked side and end members as shown in Fig. 9;

Fig. 12, a section taken on the line 12—12, Fig. 6;

Fig. 13, a view in top plan of a front end attachment, partly in section, which is applied when the boat is to be used as a life raft or carrier;

Fig. 14, a view in perspective of a toilet unit;

Fig. 15, a substantially central longitudinal sectional view of the assembled boat with the mast in place and the rudder attached;

Fig. 16, a detail view of one of the removable transverse seats;

Fig. 17, another detail view in perspective of one of the removable bulwarks;

Fig. 18, a miniature view in perspective of a carrier model as it appears when thrown from a plane or the deck of a ship;

Fig. 19, an inside perspective of one of the side members forming part of the hull;

Fig. 20, a perspective view of the boat with a modified type of end member, to be used when it is desired to obtain a streamlined pleasure craft design;

Fig. 21, a fragmentary section taken thru one of the hull side members, particularly illustrating the operation of one of the clamp units for holding the side hatch covers in raised position; and

Fig. 22, a detail perspective of the hatch cover locking bar.

The boat in the form herein illustrated has a hull made up essentially of five main parts or units, namely, two side frame units, front and rear end members, and a compartmented bottom. The construction of the side frames is best shown in Figs. 3, 4, 7, 8, 9, 12 and 19. The side frame units as a whole are each generally indicated at 10 and 11, and since each is made up of parts which are identical in construction, a description of one will suffice for both, and similar reference numerals are applied to like parts except that a prime has been added to the numerals of the right hand unit. Each side frame unit includes end pieces 12, 12^a which are connected by a top longitudinal strip 13, a similar bottom strip 14, a center rib panel 15 and an inner wall panel 16, the latter having its lower edge resting in a longitudinal rabbet or groove 17 formed in the lower strip 14 and at its upper edge being

connected to the adjacent edge of the horizontally disposed rib panel 15. The parts above described constitute a skeleton frame work over which a covering 18 is applied and secured in leakproof relation to the top and bottom strips 13 and 14 and the end pieces 12. This covering may be canvas, sheet metal of thin light gauge, or any other suitable material. In addition, vertically disposed reinforcing rib members 19 (note Figs. 3 and 19) may be connected between the strips 13 and 14 and interlocked with the rib panel 15. Each side frame thus made up constitutes a relatively light yet strong and durable unit which may be of prefabricated construction and shipped ready for assembly.

The front and rear hull end members are indicated at 20 and 21, reference being had to Figs. 8, 9, 12 and 15. The adjacent ends of the side frames or units 10 and 11 and front and rear end members 20 and 21 are provided with interlocking bracket members 22 and 23 formed with relatively deep notches 25 and 26, said bracket members being rigidly connected to the side frames and end members in any suitable manner. These bracket members 22 and 23 are adapted to interlock as best shown in Fig. 9; and they are bored and tapped as indicated at 27, to receive bolts 28, note Fig. 12. When the side frames and end members are assembled in interlocking relation as shown in Fig. 9, corner blocks 29, Figs. 10 and 11, are applied thereover. These corner blocks may be made of wood or any other suitable material and have the inside faces thereof recessed as indicated at 30 in order that they may fit snugly over the interlocking brackets 22 and 23; and when the blocks are applied, the bolts 28 are projected through countersunk holes 31 and thence through the holes 27 in the brackets 22 and 23 and into the end piece 12 of each side frame and the adjacent end member 20 or 21 as the case may be.

The hull bottom is generally indicated at 32, note particularly Figs. 4 and 15; it consists of a plurality of horizontally disposed floor panels 33, 33' and 33'', which are rigidly connected by mortised side panels 34, 34' and intermediate partition members 35, the entire bottom unit being thus made into a hollow compartmented or cellular structure of considerable strength yet light in weight and having maximum buoyancy. It will also be apparent that added safety is provided, since the bottom unit has a multiple of floors, any one of which is leak-proof and will maintain the boat afloat even tho the others may be damaged. The opposite ends of the bottom unit are sealed by mortised end pieces 36 and 37, note Fig. 15, and the floors are preferably further divided by transverse reinforcing strips 38 and 39. Between the strip 39 and end piece 37 is a sump 40 of such capacity as will provide a reasonable degree of drainage which may result from heavy seas, rain or possible leakage.

In order that the bottom unit may be easily and quickly applied in leak-proof assembled relation to the side frames and end members, a flange 41, note particularly Figs. 4, 12 and 15 is inserted between the sides and ends of the bottom and the adjacent side frames and front and rear end members. This flange may be made of sheet metal of suitable gage or other suitable material, or it may be made of resilient gasket material in whole or in part. As here shown, it is made of relatively rigid sheet material, and there is a gasket 42 mounted beneath the same over the

adjacent top edge of the bottom, thereby providing an effective seal against leakage at this point. Bolts, studs or like fastenings may be used to connect the bottom unit to the flange.

5 It will be noted from Fig. 15 that the bottom is recessed or inset with respect to the front end member and the side units or frames so as to prevent it from striking rocks and caving in and to protect it during landings.

10 When the side frames and front and rear end members together with the corner blocks and cellular bottom have been assembled, the hull of the boat is substantially complete, and the next step is the mounting of the combined side seats and hatch covers. These are best shown in Figs. 1, 2, 4 and 5. They consist of a series of panels 15 43, 44, 45 and 43', 44' and 45'. The panels 43 and 43' are reinforced by edge pieces 46, 46' which are secured thereto; and the top edges of the side frames 10 and 11 and front and rear end members 20 and 21 are rabbeted or grooved as indicated at 47 (note Fig. 9) to receive the adjacent edges of the panels 43, 43', the rabbeted or cutout portion being carried to the corner blocks 25 29 as indicated at 47', Fig. 11.

The panels 43, 43' and edge pieces 46, 46' are hinged to the panels of the side frames 10, 11 by means of hinges 48, 48', note particularly Figs. 2 and 5. The panels 44, 44' are in turn hinged 30 to the panels 43, 43' by means of hinges 49 and 49', these latter hinges being on the underside of the panels in order that the hatch covers may fold back and down as indicated in Fig. 5. Finally, the panels 45 and 45' are hinged to the panels 44 and 44' by means of hinges 50 and 50', 35 the hinges in this instance being on top of the cover. With the cover boards or panels hinged in this manner, each side may be raised and reversely folded back as best shown in Figs. 1 and 40 5, the panels 43 and 44 providing a back-rest and the panels 45 providing the seat proper. The hatch covers are preferably made in front and rear sections, the transverse dividing line being substantially in the center of the boat, note Fig. 45 2. Thus either or both the front and rear of the hatch may be covered or uncovered.

The cover boards or panels are securely held in place when folded back by a series of clamps 51, note Fig. 21, which are attached to bolts or rods 52 projecting downwardly thru the strips 50 13, 13' and lugs 52^a, springs 52^b being inserted over the bolts between the strips 13 and lugs 52^a. The bolts are arranged so that they may be pulled upwardly against the resistance of the coil springs 52^b, and the clamps 51 are provided with 55 hand rings 53 whereby the clamps may be readily raised so that the biting edges thereof engage over metal wear strips 54 applied over the inner edges of the strips 46, 46'; and when the clamps are released, the springs draw the clamps down into locking position to thereby hold the panels 60 43, 43' in raised position as shown in Fig. 5. As an alternate construction, the bolts 52 may be threaded and tapped into the strips 13, 13' so that they may be screwed down to more firmly hold the clamps 51 in position.

A ridge pole 55, note Figs. 1 and 4, is connected at opposite ends to the end members 20 and 21, the connection preferably being of a detachable or releasable nature by means of plates 56 and 70 pins 56'. This ridge pole forms a rest for the center cover panels 45, 45' when the hatch covers are battened down. Additional strength and rigidity is provided by disposing a mast 57 along the length of the boat beneath the ridge pole 55, 75

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the opposite ends of the mast being releasably connected to brackets 58 by means of pins 59. When it is desired to use the mast, it may be removed and anchored in a socket 58' provided therefor in the end unit 20, note Figs. 2 and 15. The mast may have an extension piece to increase its height if desired.

A center stanchion 60 is preferably provided at the center of the boat and may be hooked or otherwise detachably secured in place transversely of the boat, the said stanchion being provided with a center recess or rabbet in order that it may interlock with the longitudinally extending ridge pole 55, note Figs. 1 and 6.

In order to lock the center cover panels 45, 45' securely in place on the ridge pole 55, a locking plate or strip 61 is provided and is hinged at 62 in order to render it foldable for compact storage. This strip is anchored at its rear end to the rear end of the boat by means of an eye bolt 63 which projects thru an elongated slot 64 formed in the strip; a pin 65 carried by a chain or the like 66, being adapted to be projected through the eye bolt as best shown in Fig. 2. At the front end of the boat, a round-headed lag screw 67 projects upwardly from the ridge pole 55 and engages in a key-hole slot 68 formed in the front end of the strip 61, the latter having therein a flexible accordion-pleated section 69. Thus when the locking strip is laid down in place as shown in Fig. 2, the front end thereof may be located with the rear portion of the key-hole slot 68 registering with the lag screw 67, and the plate then elongated or stretched (due to the resilient section 69), bringing the slot 64 over the eye bolt 63, to be locked in place by pin 65. The deck panels 45, 45' may be provided with keyhole escutcheons 70 to receive projections 71 on the underside of the strip 61 to provide an additional securement for the latter, the engaging action being similar to that of the keyhole slot 68 with the lag screw 67.

In order to enable swimmers to board the boat, hand grips 72 and 72' are attached to the rear end of the boat; and cables or rope lengths 72^a may be connected to the rings 53 to facilitate carrying the boat and to also assist in boarding.

To provide means whereby deck covers may be easily and quickly mounted, the deck panels 43, 43' have secured thereto sockets 73, note particularly Figs. 2 and 6, adapted to receive standards 74 of suitable height, the latter serving as a frame or support for flexible covering strips 75, which may be made of canvas, rubber or other suitable waterproof material capable of being rolled up and stored together with the standards beneath the deck seats or at some other suitable point within the boat. These sockets 73 also serve as supports for additional bulwarks 88, Fig. 17, to be more fully described.

In order to provide seats for rowers or oarsmen, the members indicated at 76 in Fig. 16 may be used, their position being indicated in dotted line in Fig. 1. It will be noted that the opposite ends of the seats 76 are rabbeted, as indicated at 76', in order that the seats may be held against displacement when in position on the longitudinal seat panels 45, 45'.

In case it should be desired to use the boat as a carrier for mail, freight or the like for transportation by plane or vessel, the attachment shown in Fig. 13 may be used. This consists of a modified type of end member, generally indicated at 77, provided with a center projection 78 having a towing bracket 79 secured thereto. A weighted jacket 80, which may be of lead or other

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suitable heavy material, is secured to the end member and becomes thinner in cross section around the central portion thereof where it is anchored to the projection 78, which has an outwardly tapering base portion. This weighted jacket is adapted to serve as a means of guiding the device when thrown from a height into the water, the weight maintaining the carrier in a downward position as indicated in Fig. 18. When the carrier or raft strikes the water, this jacket serves as a cushion to break the shock. The thin section around the nose 78 may be so designed that when the craft strikes the water from a certain height, the section will be driven up on the tapered base of the projection 78 and enlarged whereupon the jacket will be free to move by gravity clear of the projection. If the jacket is connected to the boat by an anchor rope or cable, it will then serve as an anchor to hold the carrier in the immediate area where it may have been dropped.

Referring to Figs. 4 and 15, the unusual amount of storage space provided within the boat is readily apparent. As shown, there are a series of containers 81 disposed beneath the deck covers or seats, these containers being of various sizes to accommodate equipment such as food supplies, blankets, small stoves, electrical apparatus and the like. By removing any one or more of these containers, additional storage compartments are rendered accessible within the hull side frames 10 and 11. The front unit of the boat as well as the rear unit thereof may provide additional storage space, there being two tanks 82 shown at the rear of the boat which may be of approximately 25 gallon capacity, more or less, depending upon the size of the craft.

A toilet unit is shown in Fig. 14 and consists of a bottom 83 provided with anchor brackets 84, a hinge cover 85, a back 86 and an end piece 87. Two of these toilet units may be provided, one for each rear corner of the boat. When in use, the unit may be attached to the rear end of the boat by means of the brackets 84.

In certain instances, additional bulwarks such as those indicated at 88 in Fig. 17 may be used. These bulwarks are of advantage when it is desired to fold down any section of the deck for resting purposes and still have the benefit of side walls which would otherwise be provided by the back-rest panels 43. At the front end of the boat is another bulwark 88^a, note Fig. 6, which is held in place by a pair of the clamps 52. This bulwark is removable for storage within the boat when the deck is battened down.

Fig. 20 illustrates a streamline design which may be made simply by modifying the shape of the front end member, indicated at 90. In other respects the craft of Fig. 20 is similar to that of Figs. 1 and 6.

In Fig. 15 a rudder 91 is shown having a vertical shaft 91^a mounted in bearings 92 and 93 and provided with a steering bar or handle 94. It is preferred to have the rudder removable, as for example by providing a hinged or detachable upper bearing, or by any other well known expedient. Also, an outboard motor or other power unit may be used if and when desired.

The manner in which the boat may be constructed and its numerous advantages and uses will be apparent in view of the foregoing description taken in conjunction with the drawings. It will be obvious that various types of materials may be used to give strength while at the same time rendering the boat light in weight. There

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is a wide choice of such materials, and each of the respective parts of the boat may be prefabricated and shipped in knock-down form. Thus a relatively large craft may be shipped any distance without utilizing considerable freight space, as would be necessary were the craft permanently built before shipping. The boat is of great utility, both as a pleasure craft and as a commercial boat or as a life raft or carrier. No attempt has been made to set forth all of the advantages of the craft herein, and it will be obvious that changes in construction and design may be made without departing from spirit or scope of the invention as defined by the appended claims.

What I claim is:

1. In a boat, a hull made up of a plurality of prefabricated units comprising a pair of opposed side frames of hollow skeleton construction each having an outer water-proof wall and front and rear end members, interlocking fastening elements rigidly connected to the contiguous ends of the side frames and end members whereby said parts may be detachably connected to one another at the corners of the hull, corner blocks fitting in flush sealed relation over the fastening elements and corner joints providing a smooth outer surface contour, a bottom unit telescoping within the confines of said side frames and end members, and means securing said bottom in sealed relation to the side frames and end members.

2. In a boat, a hull comprising prefabricated side and end units and a bottom unit, said side units each consisting of a hollow skeleton framework with an outwardly facing water-proof shell, the interior of the framework providing storage space, the contiguous ends of the side and end units having rigidly connecting thereto locking elements adapted to engage one another and hold the said units in rigid connected relation, corner blocks fitting flush over said locking elements and the joints at the corners of the boat, said bottom unit being made up of a plurality of longitudinally extending floors and inter-connected partitions providing a series of hollow compartments in the bottom unit, a supporting flange carried by said side and end units, said bottom telescoping within the confines of said side and end units and being attached to said flange, and a sealing gasket interposed between said flange and bottom unit.

3. A boat comprising a hull defining storage and passenger space, a deck including doors hinged to the opposite sides of the deck, each door consisting of a center panel and at least two additional panels, said panels being hinged to one another in a manner such that the panels may be folded back with the center panels providing seats along the sides of the deck and the additional panels providing back rests for said seats.

4. In a boat, a hull defining a compartment for passengers and equipment, a folding deck for said compartment comprising a plurality of doors arranged on opposite sides of the approximate center line of the hull, said doors each comprising a plurality of panels hinged to one another and to the opposite sides of the deck, said panels being collapsible from a deck floor position overlying said compartment to bring certain of the panels to a position adjacent the side of the deck and provide seats with the remaining panels forming back rests for the seats.

5. A boat having a hull defining a compart-

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ment for passengers and equipment, a ridge pole extending from end to end of said compartment along the approximate center line thereof, a folding deck including doors comprised of a plurality of panels hinged to one another and the sides of the deck, said panels being foldable back to a position adjacent the sides of the hull with the center panels of the deck providing seats and the remaining panels providing gunwales and back rests for the seats, said doors when in folded-down position bringing the adjacent edges of the center panels over said ridge pole, a retaining member adapted to overlie the adjacent edges of the center panels, and means for locking said member to said ridge pole holding said doors in tight, sealed folded-down relation.

6. In a boat, a hull defining a compartment, a folding deck for said compartment, said deck including doors each comprising a plurality of panels hinged to one another and to the opposite sides of the deck, said doors being collapsible to bring certain of the panels to a position adjacent the sides of the deck and provide seats with the remaining panels forming back rests for the seats, and means for releasably securing said panels against displacement when collapsed to seat and back rest positions.

7. In a boat, a hull defining a compartment for passengers and equipment, a folding deck for said compartment comprising hinged doors each including a plurality of panels hinged to one another and collapsible to bring certain of the panels to a position adjacent the side of the deck and provide seats with the remaining panels forming gunwales and back rests for the seats, and a series of locking clamps adapted to engage said gunwale panels and hold the same in upright position.

8. In a boat, a hull defining a compartment for passengers and equipment, a folding deck for said compartment comprising a plurality of panels hinged to one another and collapsible to bring certain of the panels to a position adjacent the sides of the deck and provide seats with the remaining panels forming gunwales and backrests for the seats, and a series of spring-mounted locking clamps anchored to the hull adjacent the gunwales and adapted to releasably engage the latter and hold them in upright position.

9. A water craft in the nature of a carrier having a hull defining a compartment, a folding deck for said compartment whereby the latter may be closed and sealed against the entrance of water, and a weighted member detachably connected to the hull in a manner such that when it strikes the water the shock automatically releases the member from the hull.

10. A water craft in the nature of a relatively small compact carrier having a hull defining a compartment, a folding deck for said compartment whereby the latter may be closed and sealed against the entrance of water, a projection at one end of the hull, and a weighted jacket-like member supported by said projection and serving to maintain the carrier in a downward position when thrown from a height, said member having a thin-wall section engaging said projection, the section being designed to move relatively to and free itself of engagement with the projection as a result of shock when striking the water to thereby permit the weighted member to move by gravity clear of the hull.

11. In a boat, a hull comprised of a pair of opposed side frames of hollow skeleton construction having outer water-proof walls, front and

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rear end members, fastening elements at the contiguous ends of said side frames and end members adapted to interlock and rigidly connect the said parts to one another, a bottom unit mounted within the confines of said side frames and end members and connected in sealed relation thereto, and means overlying the fastening elements and sealing the joints between the side frames and end members.

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