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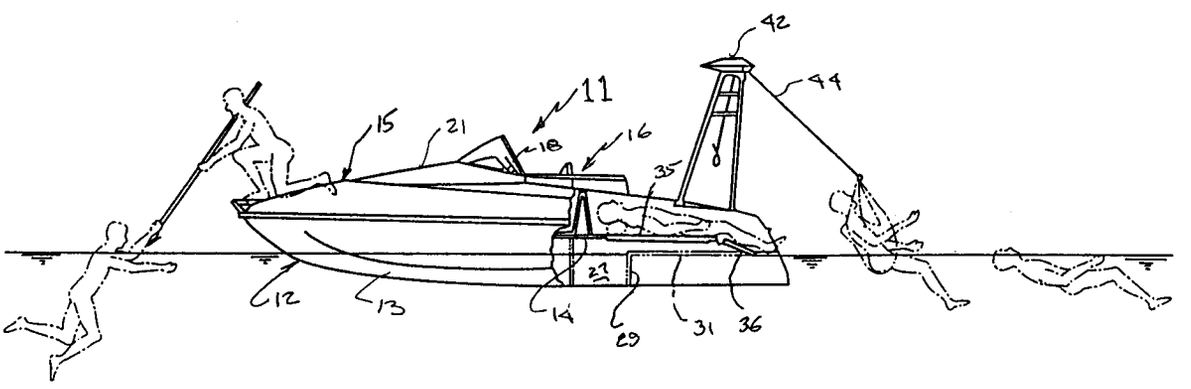
(54) Rescue watercraft.

(57) A patrol or rescue boat that is formed with a catamaran hull so as to provide a generally open deck area that extends through the rear of the transom for facilitating the transfer of injured persons onto the deck area from the body of water. In addition, a removable front deck is also provided. The rear deck has a pivotal portion so as to facilitate transfer of injured persons onto the deck and then to form an enclosure so that heated water can be flooded into the deck from the cooling jacket of the engine so as to heat an injured person.

Figure 1



EP 0 636 540 A1

The present invention relates to a rescue watercraft having a hull defining a deck and having a transom. The watercraft is designed for facilitating rescue at sea.

There is a need for a type of watercraft that is particularly useful in rescuing individuals at sea. Such a watercraft should be constructed in such a way as to permit high speed operation and yet be capable of easily moving an injured person from the body of water onto the watercraft for treatment and rescue purposes. The construction should be such that the individual can be conveniently moved from the body of water onto the deck of the watercraft with the minimum amount of disturbance to his body to avoid agravating injuries.

Accordingly, it is an objective of the present invention to provide a rescue watercraft which facilitates rescuing individuals at sea, specifically by facilitating transportation of an injured person from the body of water onto the deck. Preferrably the accommodation of the person should also promote immediate emergency treatment there.

In order to perform said objective, the rescue watercraft according to the present invention is designed such that a rear portion of the deck is disposed substantially at the water level when the watercraft is operating at sea.

According to a preferred embodiment of the present invention said portion of the deck is defined through a deck opening formed at a rear portion of the deck.

Preferrably, the length of the deck opening is adjusted to correspond to at least that of a person lying thereon in a prone condition.

According to yet another preferred embodiment of the present invention the watercraft is driven by a propulsion device, specifically a jet propulsion unit which is disposed along one side of the lowered deck opening. Preferrably there is a pair of jet propulsion drive units disposed along opposite sides of the rear deck opening.

According to yet another preferred embodiment of the present invention there is a selectively openable drain means, particularly drain openings, for draining water from the deck, specifically from the lowered rear deck opening.

According to yet further preferred embodiments of the rescue watercraft according to the present invention means are provided for delivering a heated coolant to the deck opening for a heat treatment of a person's body accommodated thereon and that the rear portion of the deck opening comprises a pivotably supported panel which is latchable in different angular positions, particularly between a lowered immersed position and raised upwardly facing position wherein it forms a dam to retain water in the deck opening.

In order to facilitate drawing an injured person onto the rear deck opening a hoist means is preferrably provided bridging the deck opening and adapted to draw a person out of the body of water onto the deck, specifically onto the deck opening.

According to yet another preferred design of the rescue watercraft according to the present invention the watercraft is of the catamaran type comprising a pair of catamaran hulls disposed on opposite sides of the deck opening, said catamaran hulls may be filled with bouyant floatation mediums such as foam while a forward portion of the catamaran hulls define a recessed area adapted to accommodate a removably perforated deck panel.

In the following the present invention is explained in greater detail by means of a preferred embodiment thereof in conjunction with the accompanying drawings:

Figure 1 is a side elevational view of a watercraft constructed in accordance with an embodiment of the invention and shows various ways in which the watercraft can be utilized to rescue persons from the body of water.

Figure 2 is a top plan view of the watercraft, with portions broken away, so as to more clearly show the construction.

Figure 3 is a rear elevational view thereof and shows the rear portion of the deck in its lowered position.

Figure 4 is a side elevational view of the watercraft and shows how the hatch cover may be opened.

Figure 5 is a perspective front side view of the underside of the hull showing the rear deck portion lowered.

Figure 6 is a partially exploded view showing the removable front deck portion.

Figure 7 is a cross sectional view showing how the angle of the rear portion of the rear deck can be adjusted.

Figure 8 is a cross sectional view taken along the line 8 - 8 of Figure 7 and shows how the latching mechanism for the rear deck portion operates.

Figure 9 is an enlarged side elevational view showing the transfer of an injured person onto the deck.

In the drawings, a patrol or rescue watercraft constructed in accordance with an embodiment of the invention is identified generally by the reference numeral 11. The watercraft 11 is comprised of a hull having a lower portion, indicated generally by the reference numeral 12 which is configured as a catamaran as may be clearly seen in Figures 5 and 6 wherein there are provided a pair of spaced apart hull portions 13 separated by a recessed lower hull area 14. A deck, indicated generally by the reference numeral 15 is connected to the lower

hull portion 12 in a suitable manner. The deck 15 and lower hull portion 12 are formed from suitable materials such as molded fiberglass reinforced resin or the like.

A rider's cockpit 16 is formed by the deck 15 and is located generally centrally in the longitudinal fore and aft direction of the watercraft 11. The rider's area 16 includes a pair of seats 17 with a watercraft control area 18 being positioned at the front of one of the seats 17. The rider's area 16 is designed so as to accommodate in addition to two seated passengers, individuals standing.

An enlarged storage area 19 is formed in the deck 15 forwardly of the rider's area 16 and is accessible through a pivotally supported hatch cover 21. The hatch cover 21 has a pivotal support to the deck 15 at its forward end for pivotal movement about a generally transversely extending axis so as to access the storage compartment 19. A stay 22 may be provided so as to permit retention of the hatch cover 15 in its open position.

Forwardly of the storage compartment 19, there is provided a further area 23 in which a fuel tank 24 is provided for containing fuel for the engines of the watercraft 11, as will be described. The fuel tank 24 may be accessible for filling through the hatch cover 21 when it is pivoted in an open position. Alternatively, an external fuel filler may be provided for the fuel tank 24. The areas under the seats 17 may accommodate a pair of batteries 25 for supply of electrical power for the watercraft 11.

It should be noted that the catamaran hull portions 13 extend generally forwardly beyond the forward periphery of the fuel tank 24 and thus provide an open area, for a purpose which will be described. In addition, the hull portions 13 are filled with a buoyant floatation media 26 such as a foamed plastic or the like and this buoyant material extends back to opposite sides of the rider's compartment 16.

At the rear portions of each of the catamaran hulls 13 there is provided an engine compartment 27 which is disposed rearwardly of the rider's compartment 16 and in which internal combustion engines 28 of any known type are accommodated. Rearwardly of the engine compartments 27 and separated therefrom by bulkheads 29 are tunnel areas 31 in which jet propulsion units 32 are supported. The jet propulsion units 32 are driven by the engines 28 respectively, and have downwardly facing water inlet openings 33 (Figure 5) through which water is drawn. Impeller portions are formed behind the water inlet portions 33 and contain impellers driven by the engines 28. The water pumped by the impellers is then discharged through respective steering nozzles 34 that are supported for pivotal movement about vertically extending steering axes, as is well known in this art, and which are operated by the control 18 in a well known manner.

The area to the rear of the passenger's compartment 16 and between the engine compartments 27 and tunnels 31 provides a deck area 35 which is opened to the rear of the watercraft 11 and specifically through the transom so that injured persons may be drawn onto the deck area 35 in a manner which will be described. The rear portion of the deck area 35 is provided with a pivotally supported panel 36 which may be adjusted to any of a variety of angular positions as set by a plurality of ampetures 37 (Figures 7 and 8) formed in the side walls 38 of the hull surrounding the deck area 35. The panel 36 may be adjusted to any desired angular position as shown in Figure 7 so as to facilitate the moving of an injured person onto the deck area 35. The panel 36 may then be pivoted upwardly so as prevent the injured person from falling off of the deck area 35 and also so as to form a dam that can be filled with heated water from the cooling jackets of the engines 28 for heat treatment of an injured individual. A sliding pin type latch 40 is provided at each side of the panel 36 to lock it in the respective position. A pair of drain openings 41 are provided in the deck area 35 and may be opened and closed so as to permit the heated water to be retained in this area or drained from it.

In order to assist in transporting injured persons onto the deck area 35, there is provided an bridge 42 which spans the deck area 35 and which has a pulley 43 formed therein to accommodate a rope 44 so as to assist in the movement of an injured person into the deck area 35 as clearly shown in Figures 1 and 9.

As has been previously noted, there is a gap between the forward portions of the catamaran hulls 13 and a deck piece 45 having perforated openings 46 is adapted to be detachably affixed to a flange 47 (Figures 5 and 6) formed on the peripheral edge of the hull portion 12 so as to accommodate a person standing at the front of the deck as shown in Figure 1 for further rescue operations. The deck piece 45 may be easily removed so as to offer greater access and the perforated openings 46 offer a better foot grip by giving a textured configuration and permit drainage.

It should be readily apparent from the foregoing description that the described watercraft is particularly useful in providing a rescue or patrol boat and because of the use of the catamaran type hulls and side by side jet propulsion units, a large deck area is provided at the rear that will easily accommodate the transfer of injured persons onto the deck area and the treatment of these injured persons there.

Of course, the foregoing description is that of a preferred embodiment of the invention and various changes and modifications may be made without departing from the spirit and scope of the invention, as defined by the appended claims.

Claims

1. Rescue watercraft comprising a hull defining a deck (15) and having a transom, **characterised in that** a rear portion of the deck (15) is disposed substantially at the water level when the watercraft is operating in the body of water.

2. Rescue watercraft as claimed in claim 1, **characterised in that** said rear portion of the deck (15) is defined through a deck opening (35).

3. Rescue watercraft as claimed in claim 2, **characterised in that** the length of the deck opening (35) at least corresponds to that of a person laying thereon in a prone condition.

4. Rescue watercraft as claimed in at least one of the preceeding claims 1 to 3, **characterised in that** a propulsion device, specifically a jet propulsion drive unit (32), is disposed on at least one side of the deck opening (35).

5. Rescue watercraft as claimed in at least one of the preceeding claims 1 to 4, **characterised by** selectively openable drain means (41) for draining water from the deck (15) including the deck opening (35).

6. Rescue watercraft as claimed in at least one of the preceeding claims 1 to 5, **characterised by** means for delivering a heated coolant to the deck (15) specifically to the deck opening (35) for a heat treatment of a person's body accommodated on deck (15, 35).

7. Rescue watercraft as claimed in at least one of the preceeding claims 1 to 6, **characterised in that** the rear portion (35) of the deck (15) comprises a pivotably supported panel (36), pivotable between a lowered immersed position and raised upwardly facing position, the latter forming a dam to retain water in the deck opening (35).

8. Rescue Watercraft as claimed in at least one of the preceeding claims 1 to 7, **characterised by** hoist means (42, 43) extending over the deck opening (35) and adapted to draw a person out of the body of water onto the deck (15), specifically the deck opening (35).

9. Rescue watercraft as claimed in at least one of the preceeding claims 1 to 8, **characterised in that**, said hull having a catamaran type configuration comprised of a pair of catamaran hulls (13) disposed on opposite sides of the deck opening (35).

10. Rescue watercraft as claimed in claim 9, **characterised in that** a forward portion of the catamaran hulls (13), preferrably filled with a bouyant floatation medium (26), defines a recessed area adapted to accommodate a removable deck panel (45) which, in turn, is adapted to be affixed across the recessed area.

11. Rescue watercraft as claimed in claim 10, **characterised in that**, the deck panel (45) is perforated.

Figure 1

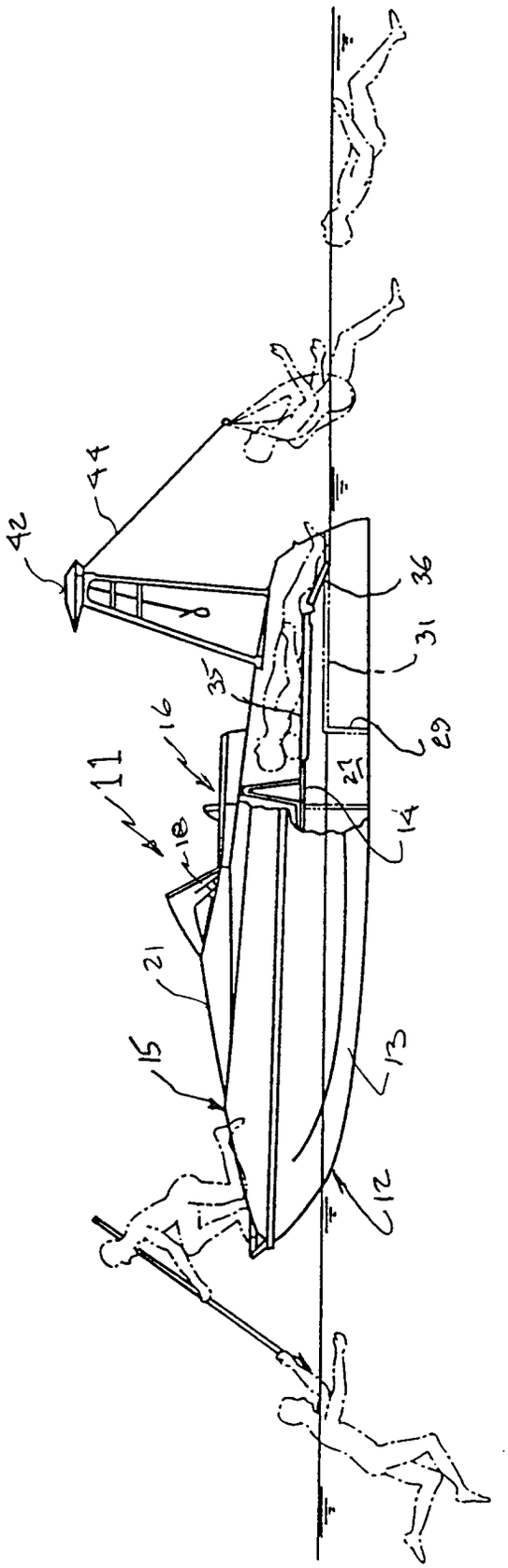


Figure 2

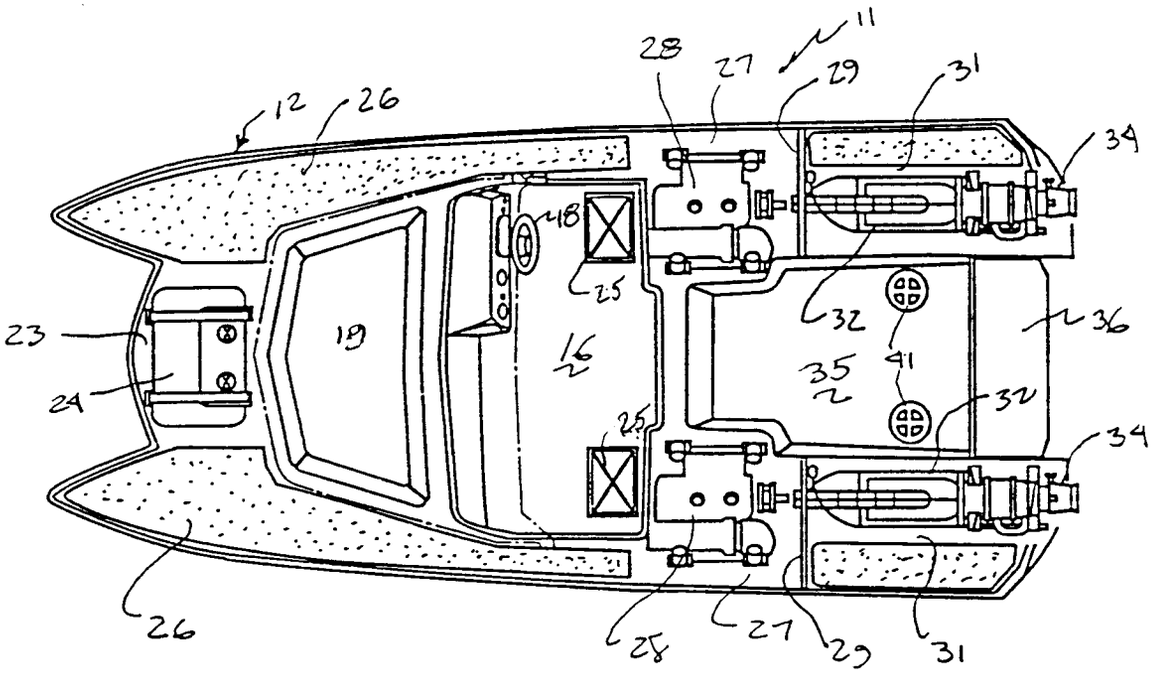


Figure 3

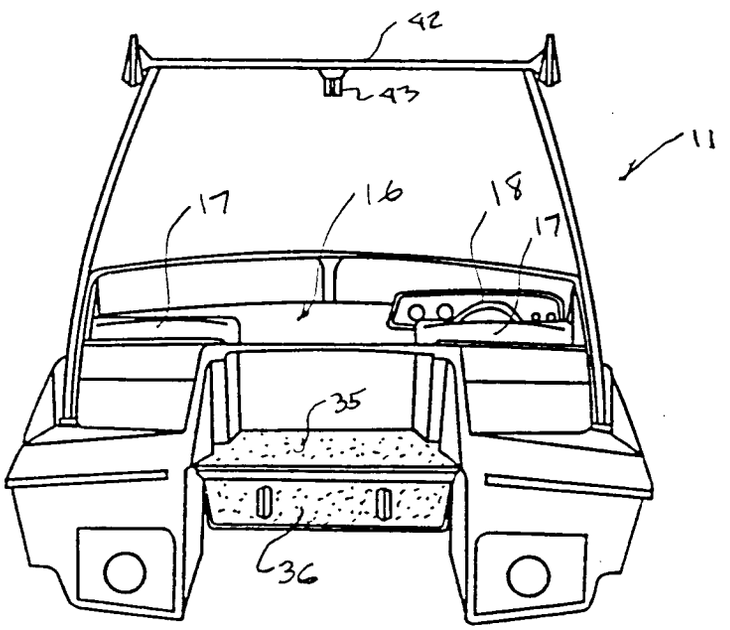


Figure 4

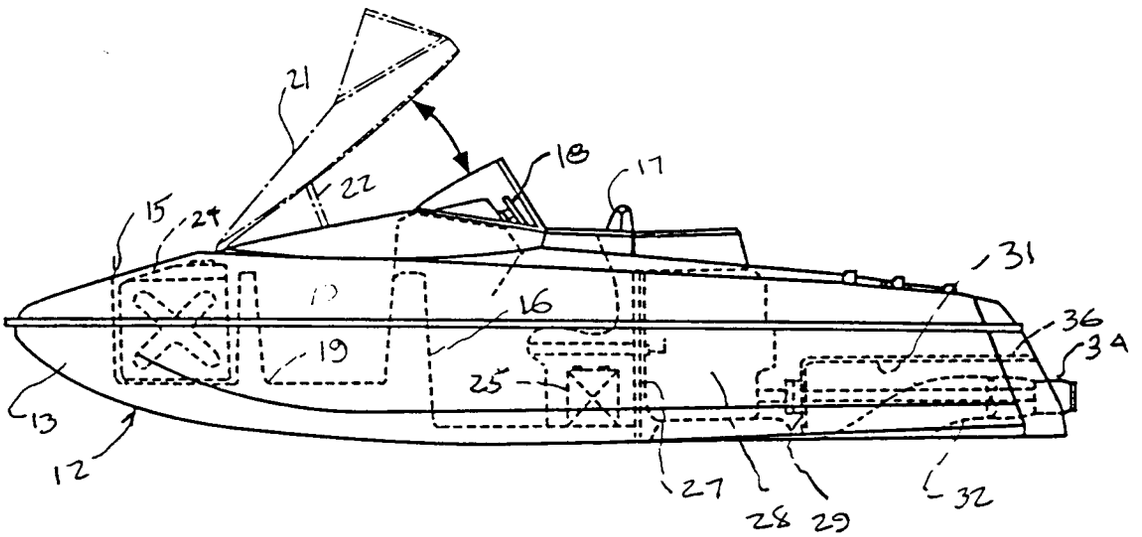


Figure 5

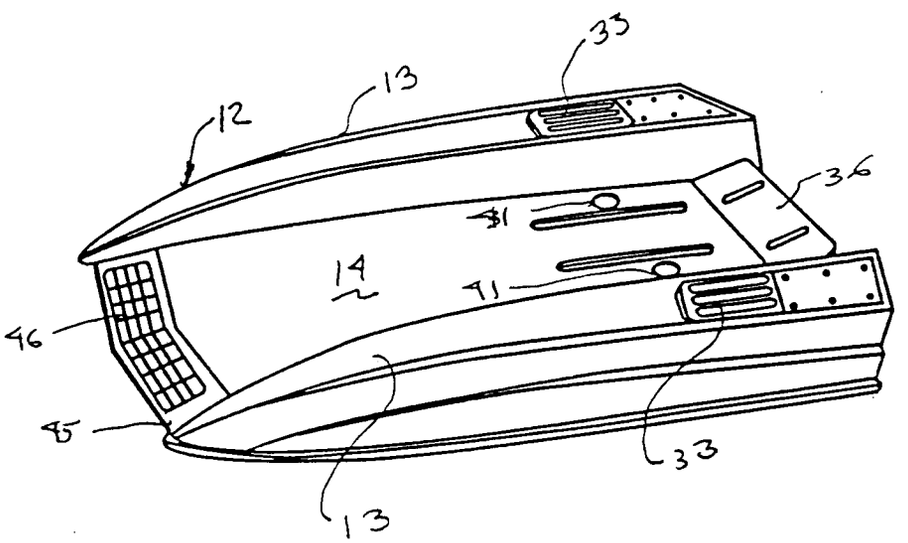


Figure 6

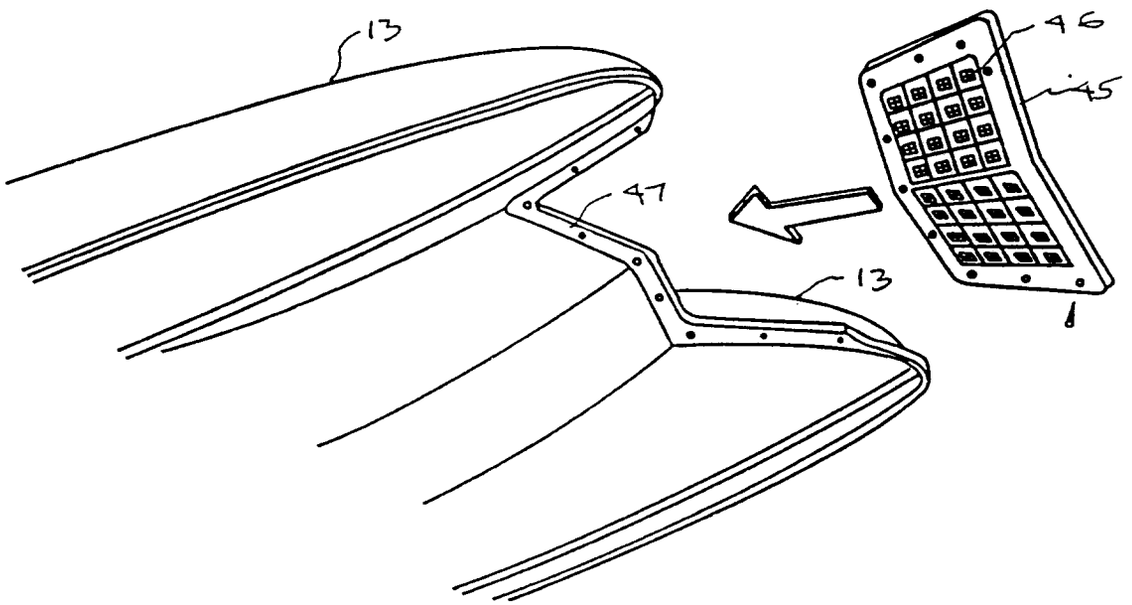


Figure 7

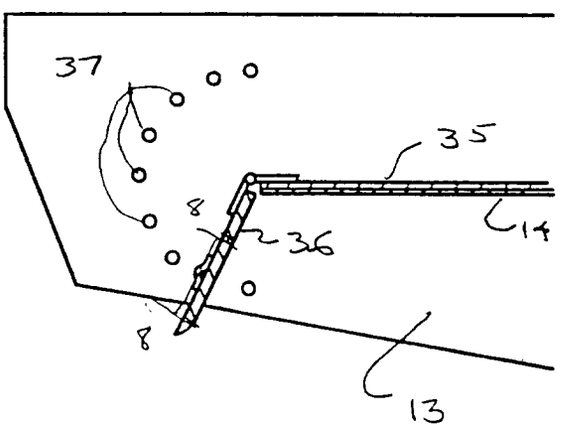


Figure 8

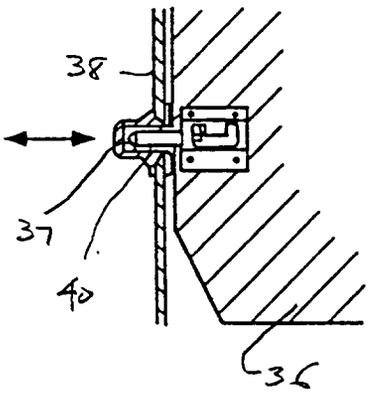
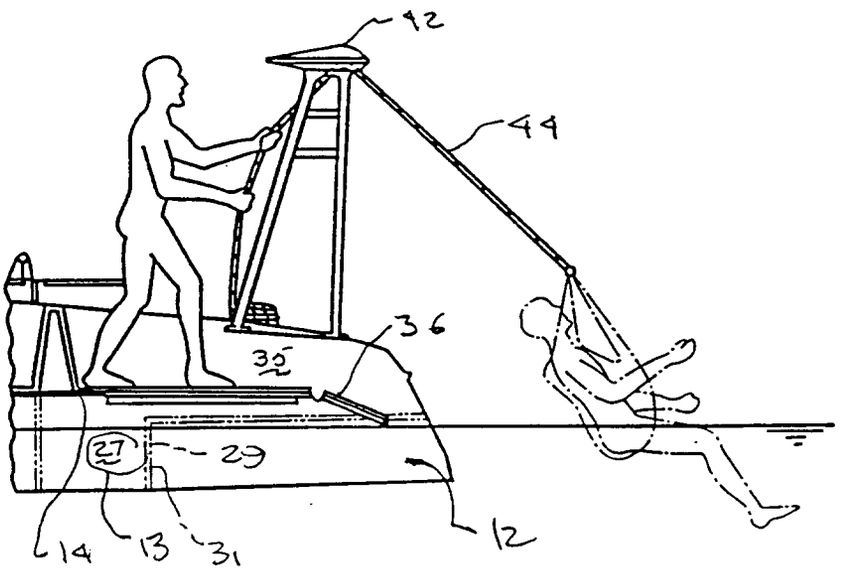


Figure 9



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EUROPEAN SEARCH REPORT

Application Number
EP 93 11 2192

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	DE-A-34 29 990 (L.SCHÄFER) * abstract; figures *	1-4	B63C9/02 B63C9/28
A	GB-A-1 585 865 (HARDING A/S) * claims; figures *	1,4,7	
A	DE-A-27 36 873 (H.DAEDLER) * page 11 - page 12; figures *	1,8	
A	FR-A-2 241 445 (G.HENNEBUTTE) * claim 1; figures * * page 3, line 29 - line 35 *	1	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

B63C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	29 December 1993	Stierman, E

CATEGORY OF CITED DOCUMENTS

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