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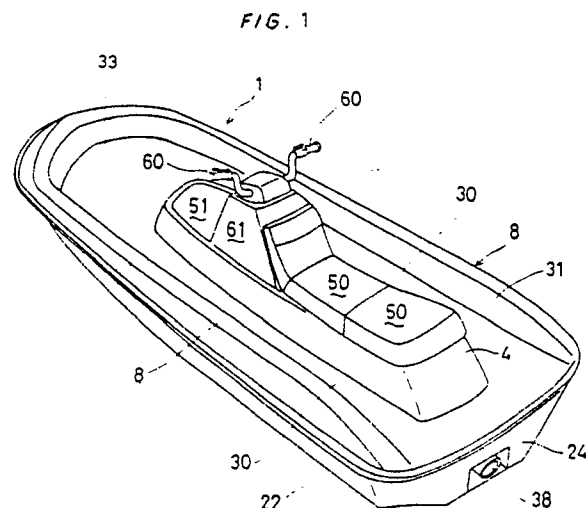
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54 **Jet propulsion small boat.**

57 The invention relates to a jet propulsion small boat (1) comprising a deck member (3) and a hull member (2), both integrally formed from synthetic resin such as FRP and bonded with each other at their fringe portions. In addition to bulwarks (8) formed at the fringe portions of the deck member with the exception of the stern end of the deck member, same comprises a seat stand (4) and an operating handle stand (61) projectingly formed on the hull centre line and, moreover, the decks formed on both sides of and in front of these stands are integrally formed continuedly to each other as a generally single plane with the stern ends of the rear deck portion being open to allow smooth flow-off of water thrown up on board.



JET PROPULSION SMALL BOAT

The invention relates to a jet propulsion small boat as indicated in the introductory portion of the main claim, which runs on the sea surface at a high speed with one or a plurality of riders on it, enabling also to make use of the boat for other activities such as fishing with the boat drifting on the sea surface.

Known from practical use are jet propulsion small boats which are engined small boats for gliding on the water surface like a motor-cycle type jet boat. Since such a jet propulsion boat is used for practising various motions while gliding at a high speed on the water surface, it is provided with seats including, for example, a bench seat on the hull centre line, and an operating handle on its front portion to be operated by a rider sitting astride the seat with his feet placed on the decks on both sides thereof.

As the above-mentioned jet propulsion boat practises various motions while gliding on the water surface at a high speed and thus waves are frequently apt to dash over the boat, it is necessary for the water thrown up on to the boat to be readily rejected and removed from the boat's deck surfaces. Moreover, as such a jet propulsion boat is nowadays more and more utilised not only for gliding on the water surface but also for other purposes such as fishing, leaving the boat drifting on the sea surface, it is desirable for the rider on the boat to be able to move about on it easily and without discomfort.

Up till now, however, prior art structures of such jet propulsion small boats have not appropriately considered the water rejection function or the ease of riders moving about on the boat and, therefore, imply a certain degree of discomfort for the riders.

It is therefore an object of the present invention to improve a jet propulsion boat of the type indicated above to overcome such aforementioned problems in such a manner that a jet propulsion small boat is created which is convenient for various purposes having an excellent water rejecting function and enabling the rider on board to move about easily without deterioration of the stability of the boat drifting on water.

In accordance with the present invention, the aforementioned object is attained by the provision that the deck member of the boat comprises bulwarks formed at its fringe portions except at the stern end of the deck member, a seat stand and an operating handle stand both projectingly formed on the hull centre line and decks which are formed on both sides of and in front of these stands continued to each other to form a substantially single

plane with the stern ends of the rear deck portion open to allow unrestricted flow of water, in particular allowing water thrown up on board to smoothly flow off the rear end portions of the continuous decks to their stern and off the boat without staying on board.

With the above-mentioned structure, because the decks are formed continuously integrally with each other as a generally single plane with the stern end of the boat's deck being unrestrictedly open, water thrown up on board can promptly be rejected from the boat's decks flowing off the stern ends thereof and, moreover, it is very easy for the rider or riders to move about the deck.

According to an advantageous embodiment of the present invention providing improved stability due to large buoyancy spaces, the hull member comprises a bottom plate, side plates and a stern plate, while the deck member comprises rising portions formed at its fringes except at the stern end portion of the deck member, said rising portions having their upper end portions folded back put upon and bonded with the upper end portions of the hull side plates to form bonded portions with said rising portions of the deck member and said side plates of the hull member defining spaces therebetween to establish said bulwarks, substantially supporting an increased stability of the boat.

In order to assist convenient usability of the boat, in particular by a plurality of riders, a plurality of seats or a bench seat and another seat are respectively provided to the rear and front portions of the seat stand, the latter being integrally provided with the deck portions.

Moreover, the boat can conveniently be used for fishing, leaving the boat drifting, designing said bulwarks to form footings while setting the seats higher than the bulwarks.

A particular increased buoyancy can be obtained if the hull member and the deck member including the seat stand, operating handle stand and bulwarks are designed to form a hermetically sealed space to define displacement volume.

Preferably, said continued decks, which form a generally single open-ended plane at the stern end portion of the boat, are set to be slightly inclined rearwardly when the boat is under way to promote the rejection of water from the deck.

According to another advantageous embodiment of the invention, a compacted structure of the boat can be obtained in that an engine room is found beneath the operating handle stand and the seat stand adapted to receive at least an engine and a fuel tank, with the engine being provided to rotate a propeller to suck in water through a water

suction opening at the hull bottom and to inject it backwards in a desired direction through a water passage and then through a horizontally swingable nozzle at the stern of the boat to produce a propelling force and a turning force, respectively.

Further objects, features and objectives of the present invention are explained in the following description depicting an embodiment of the jet propulsion small boat according to the present invention by way of example with reference to the accompanying drawings, wherein:

Fig 1 is a perspective view showing an embodiment of the present invention;

Fig 2 is a plan view of Fig 1;

Fig 3 is a cross-sectional view of the boat according to Figs 1 and 2;

Fig 4 is a longitudinal sectional view of the boat according to the preceding figures; and

Fig 5 is a view similar to Fig 4 but showing the boat lying at anchor.

In Figs 1 through 4 the boat hull 1 is composed of a hull member 2 and a deck member 3 both integrally formed from synthetic resin such as FRP and bonded with each other at their respective fringe portions. The portion surrounded by the hull member 2 and the deck member 3 is formed as a hermetically sealed space to define an appropriate displacement volume. The hull member 2 has a bottom plate 20, side plates 22 and a stern plate 24 and the deck member 3 comprises rising portions 31 erecting at its fringes with the exception of the stern end of the boat, with the upper end portions of said rising portions 31 being folded back, put upon and bonded with the upper end portions of the hull side plates 22 to form the bonded portions 23. These rising portions 31 and the associated side plates 22 form spaces therebetween and thus establish bulwarks 8.

Moreover, the deck member 3 is provided with a seat stand 4 and an operating handle stand 61, both projectingly formed on the hull centre line and comprises decks 30 with open stern ends formed on both sides of these stands 4, 61 between the bulwarks 8 and these stands 4, 61 and, finally, a deck 33 is formed in front of these stands. All of these decks are integrally continuously formed with each other as a generally single plane. On the above-mentioned operating handle stand 61 is mounted an operating handle 60 and on the rear and front portions of the seat stand 4 are formed seats 50, preferably designed as a bench seat, and a seat 51, respectively.

Under the operating handle stand 61 and the seat stand 4 is formed an engine room in which are arranged an engine 14, a fuel tank, etc., and by this engine 14 a propeller (not shown) is rotated to suck in water through the water suction opening 36 at the hull bottom and inject it backwards in a desired

direction through the water passage 37 and then through the horizontally swingable nozzle 38 at the stern to produce a propelling force and a turning force.

With the above-mentioned construction, since both decks 30 and 33 are continued to each other, even if waves dash over the boat from the water surface as the boat glides or turns, the water thrown up on board is smoothly rejected from the rear end portions of the decks 30 to their stern ends without staying on board. Further, although this jet propulsion suffers a large inclining moment due to rapid turns, etc., its righting moment is large and its stability is excellent because its bulwarks on both sides have large buoyancy spaces due to their above-mentioned structure.

The space on board can be effectively utilised by two riders by seating both riders fore and aft astride the seat 50 as shown in Fig 4 while gliding ordinarily, and also by seating one rider forward on the front seat 51 with his feet placed on the deck 33 and the other rider rearward on the seat 50 as shown in Fig 5, while lying at anchor offshore for fishing or the like. Further, although such an extraordinarily small boat is apt to be rendered very unstable by a large inclining moment working on the boat when a rider changes his seat, the rider can move about on board the boat according to this invention very easily because the decks 30 and 33 continue to each other as a generally single plane.

On the other hand, it is advantageous for utilising the bulwarks 8 as footings while fishing to set the seat 50 higher than the bulwarks 8, as shown in Fig 3.

As described above, since the stern ends of the decks 30 are open while the decks 30, 33 are formed continuedly to each other as a generally single plane according to this invention, water thrown up on the decks 30, 33 is promptly rejected from the stern end without staying on board, and it is very easy for the rider to move about on board. This construction is desirable for utilising the jet propulsion boat for various purposes.

Claims

1. A jet propulsion small boat comprising a deck member and a hull member, both integrally formed of synthetic resin such as FRP, and bonded with each other at their fringe portions, **characterized in that** said deck member (3) comprises bulwarks (8) formed at its fringe portions except the stern end of the deck member (3), a seat stand (4) and an operating handle stand (61) both projectingly formed on the hull centre line and decks (30, 33) formed on both sides of and in front of these stands (4, 61) continuedly to each other as a sub-

stantially single plane with their stern ends opened in order to allow water thrown up on board to be smoothly rejected from the rear end portions of the decks (30) to their stern ends without staying on board.

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2. A jet propulsion small boat as claimed in claim 1, **characterized in that** the hull member (2) comprises a bottom plate (20), side plates (22) and a stern plate (24), whereas the deck member (3) comprises rising portions (31) formed at its fringes, except at its stern end, with their upper end portions folded back, put upon and bonded with the upper end portions of the hull side plates (22) to form bonded portions (23) with said rising portions (31) of the deck member (3) and the side plates (22) of the hull member (2) defining spaces therebetween, thus forming said bulwarks (8).

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3. A jet propulsion small boat as claimed in any of the preceding claims, **characterized in that** a plurality of seats (50) and a seat (51) are respectively provided on the rear and front portions of the seat stand (4).

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4. The jet propulsion small boat as claimed in any of claims 1 to 3, **characterized in that** said bulwarks (8) form footings, for example, while fishing while the boat is at rest or drifting, setting the seats (50) higher than the bulwarks.

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5. The jet propulsion small boat as claimed in any of claims 1 to 4, **characterized in that** the hull member (2) and the deck member (3) including the seat stand (4), operating handle stand (61) and bulwarks (8) form a hermetically sealed space to define displacement volume.

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6. The jet propulsion small boat as claimed in any of claims 1 to 5, **characterized in that** said continued decks (30, 33) forming a generally single open-ended plane at the stern end portion of the boat are slightly inclined rearwardly when the boat (1) is under way.

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7. The jet propulsion small boat as claimed in any of claims 1 to 6, **characterized in that** an engine room is formed beneath the operating handle stand (61) and the seat stand (4), adapted to receive at least an engine (14) and a fuel tank (15), with the engine (14) being provided to rotate a propeller to suck in water through a water suction opening (36) at the hull bottom (20) and inject it backwards in a desired direction through a water passage (37) and then through a horizontally swingable nozzle (38) at the stern of the boat (1) to produce a propelling force and a turning force, respectively.

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FIG. 1

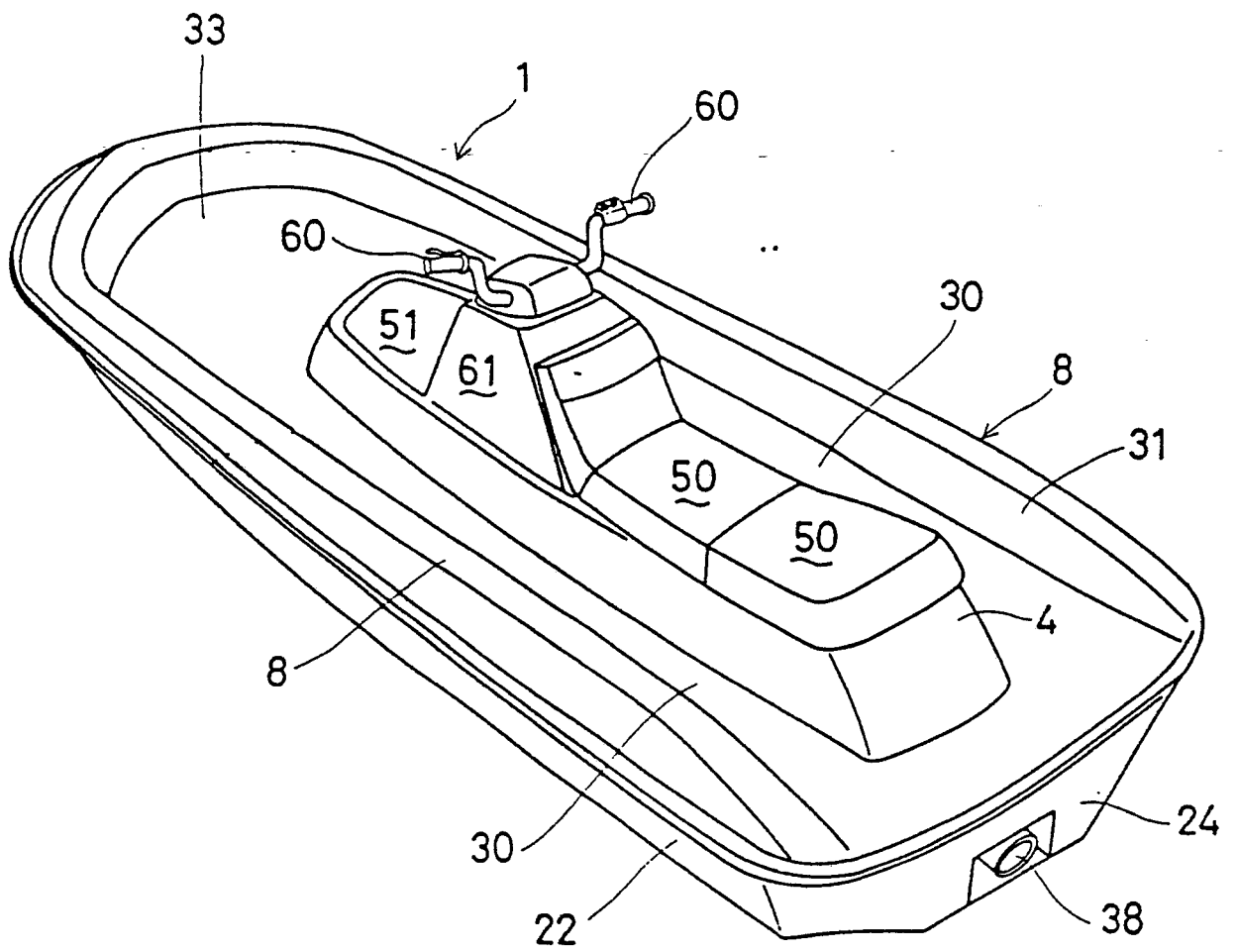


FIG. 2

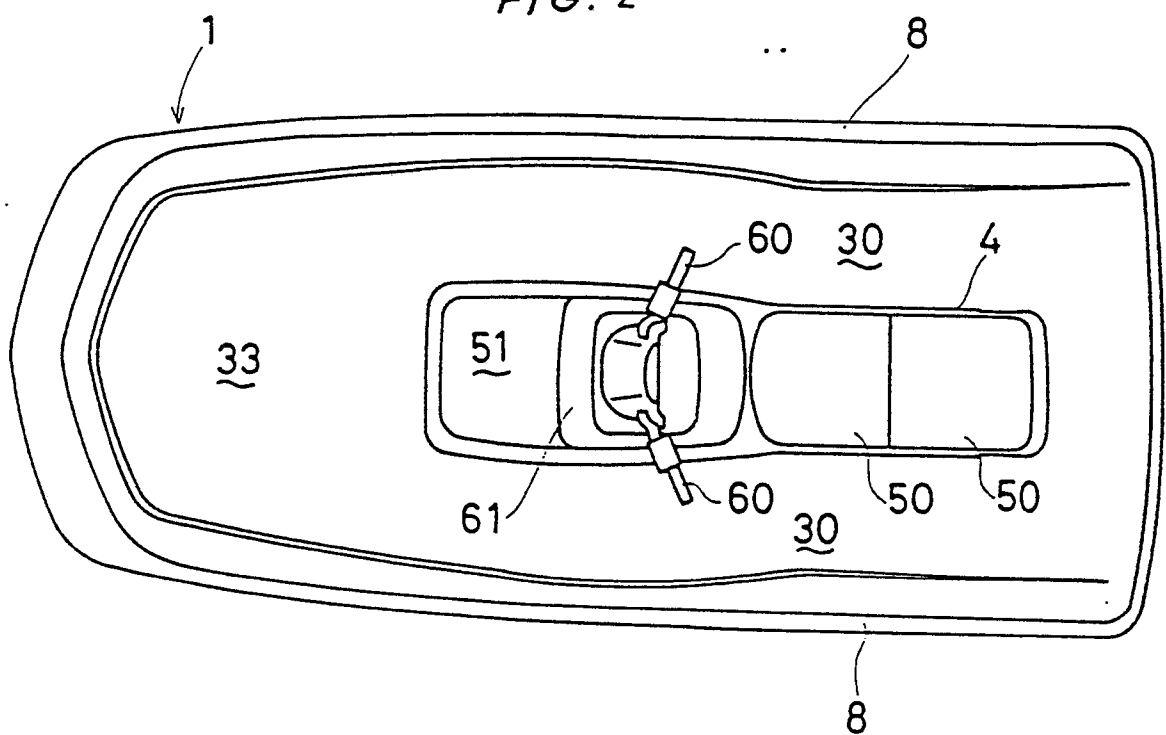


FIG. 3

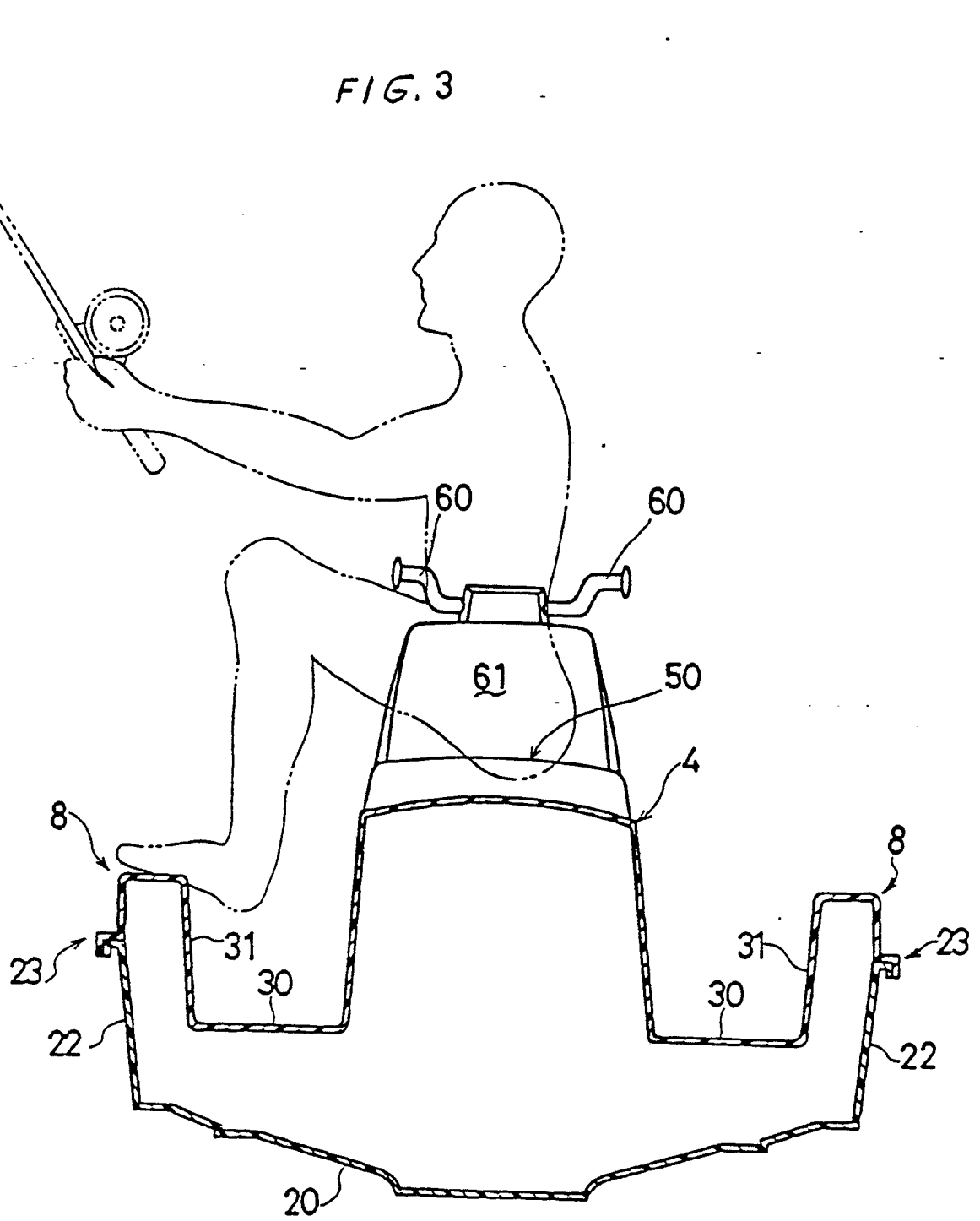


FIG. 4

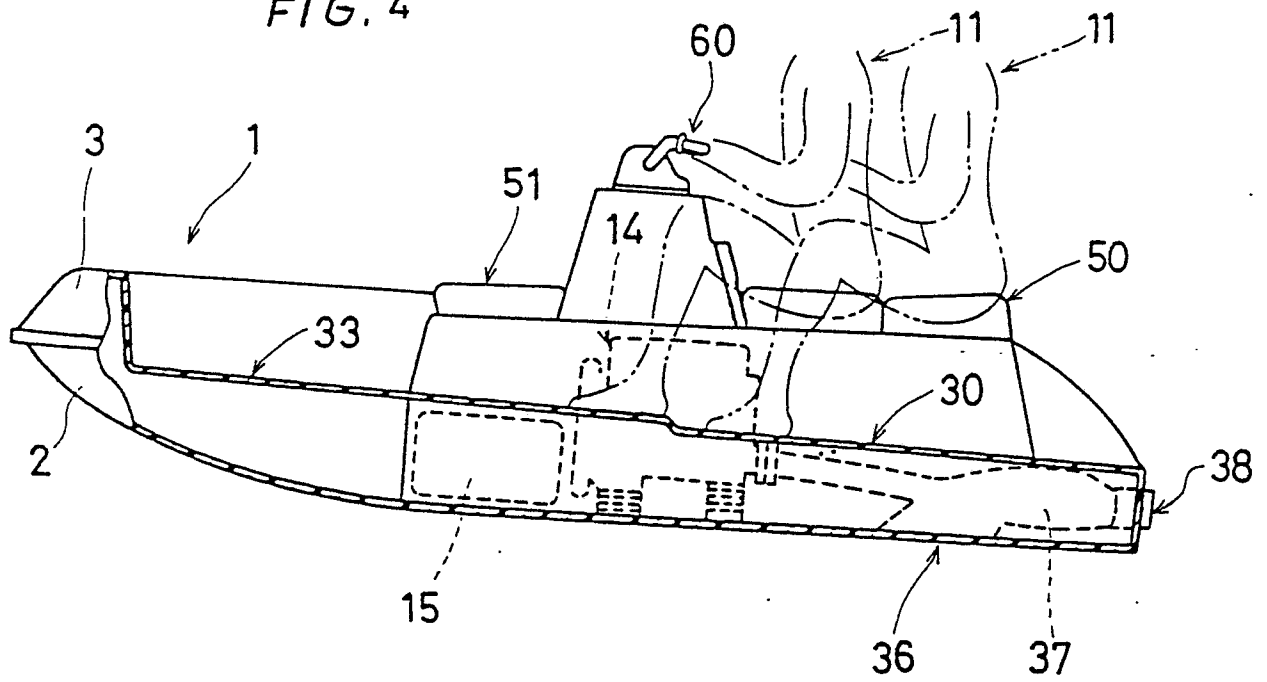
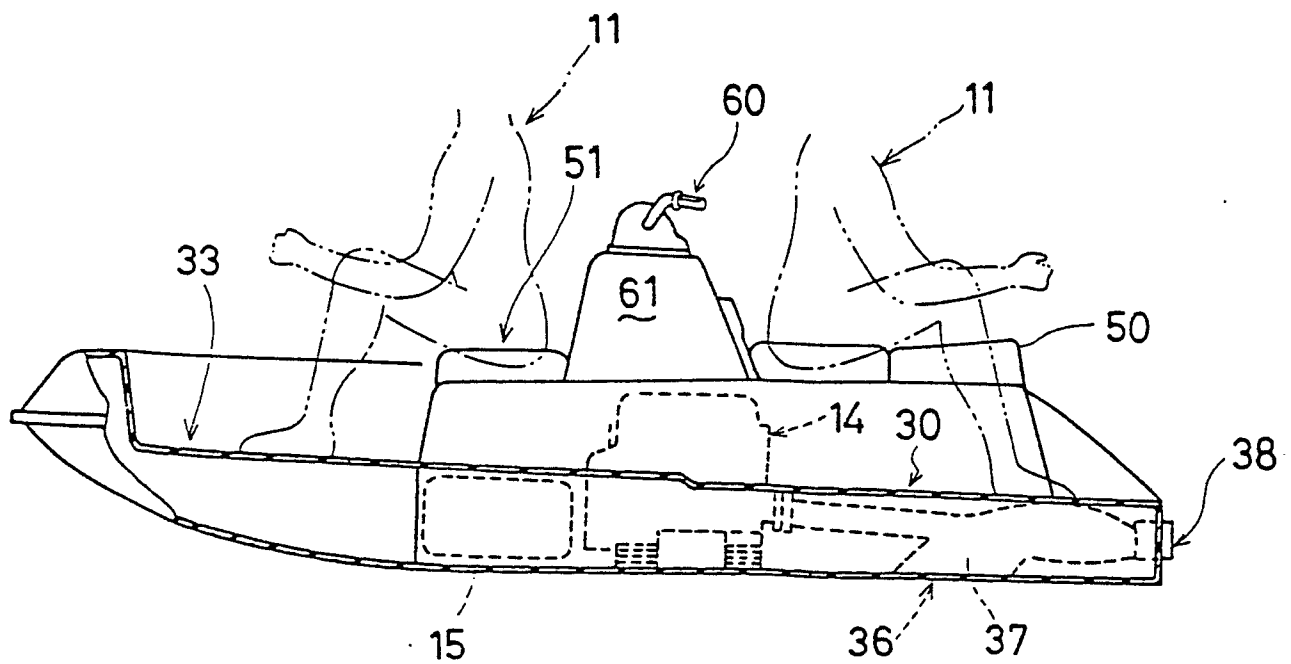


FIG. 5





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.5)
X	FR-A-2 561 198 (LE MAUX) * Page 1, lines 18-34; figures 1,2 *	1	B 63 B 35/79
Y	---	2-7	B 63 B 13/00
Y	US-A-4 760 814 (KOBAYASHI) * Whole document *	2,4-7	
A	---	1	
Y	US-A-4 320 713 (NISHIDA et al.) * Column 2, lines 56,57; figure 1 *	3	
A	---	1	
A	US-A-2 901 757 (REMINGTON) * Column 3, lines 25-34; figures 1-3 *	1,2,5,6	
A	US-A-3 552 349 (SNOW) * Whole document *	1-6	
A	FR-A-1 512 908 (BEDFORD) -----		
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B 63 B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 30-11-1989	Examiner DE SENA Y HERNANDORENA A
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			