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54 **Inflatable boat.**

57 Multikeeled hull (1) having an inflatable member or members (11) constrained to lie between the flexible skin (3) of the boat and a reaction surface (4). Preferably there is a rigid deck as a reaction surface (4) overlying the flexible skin (3) with two parallel inflatable tubes (11) under the deck spaced apart by a distance approximately equal to half the width of the deck. Between the keels formed by the tubes (11) the flexible skin (3) forms a channel which is self-adjusting (15,15') according to the loading of the boat.

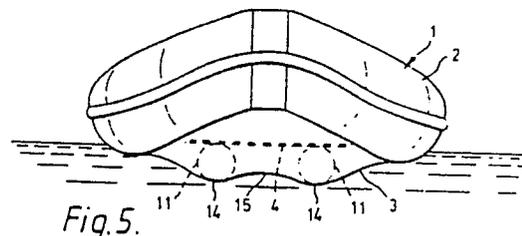


Fig. 5.

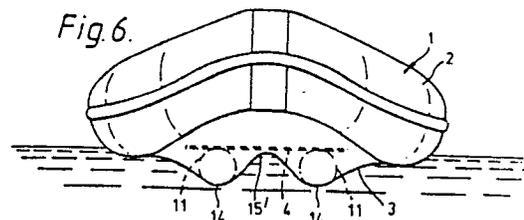


Fig. 6.



This invention relates to inflatable boats, that is boats having inflatable flotation members, and is concerned with the keel arrangements of such boats.

5 There have been numerous prior proposals relating to the underwater surface of inflatable boats, and it has also been suggested that for rigid-hull boats multi-keel underwater surfaces should be provided. Thus in British Patent 1,273,692 there is disclosed a boat hull provided in a forward section with a  
10 twin keel and in a rearward section with a single keel. The forward twin keels may each be lowerable or raisable to improve riding characteristics of the hull.

15 In British Patent 1,319,072 there is disclosed an inflatable boat in which the shape of the hull is a function of the hull construction itself of a number of inflatable tubes which cooperate to provide a generally U-shaped or V-shaped cross-section for the hull.

20 In British Patent 1,362,677 there is disclosed an inflatable boat having inflatable side walls serving as flotation members, a flexible underwater skin, a rigid deck and between said skin and deck an inflatable former member along the longitudinal centre-line of the boat shaping the flexible skin to form a central keel.

However in none of these prior art proposals has  
it been appreciated or suggested that by having a boat  
with a flexible underwater skin and inflatable former  
members to cause the undersea surface of the boat to  
have a multi-keel construction, automatic adaptation  
of the planing characteristics of the boat to the  
load carried in the boat could be achieved.

The present invention is concerned to form, by  
inflation, a multi-keel underwater surface. The  
proposal uses the flexibility of a fabric skin,  
stretched over shaped inflated formers, to allow  
inherently the adaptation of the shape of the  
underwater surface to load conditions being  
experienced. This gives a self-compensating  
underwater surface which retains its good planing  
performance under all load conditions. The use  
of parallel twin inflated formers (preferably separate

sacs or tubes) to give a generally W-section underwater surface is simplest and at the same time yields very good results. The spacing apart of the parallel formers may be approximately 50% of the deck width of the boat, when only two keels are present.

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The floor will provide the reaction surface against which the formers act and will most conveniently be rigid panels extending the whole width of the boat and terminating under, and being supported by, the inflated buoyancy tubes of the boat.

Boats thus constructed may be of any appropriate size but especially suitable will be application of this invention to boats of larger sizes, e.g. 5 metres length upwards, whether with single or multiple engine installations.

A particular boat embodying the invention will now be described with reference to the accompanying drawings wherein:

Figure 1 is a plan view of the forward part of the boat;

Figure 2 is a perspective view of the forward part of the boat;

Figure 3 is a partial, diagrammatic, lateral section;

Figure 4 is a side view and

Figures 5 and 6 show front views of the boat in the water in heavily and lightly loaded condition respectively.

The boat 1 has the usual U-shaped inflated buoyancy tube 2 attached to a flexible fabric floor 3 and a rigid deck 4. The deck 4 is made up of rigid panels extending the whole width of the flexible fabric floor. A forward panel 5 is adapted to the shape of the bow of the boat,

a removable panel 6 allows for the assembly of the floor and for access to inflatable keel-formers, and at least one rear panel 7 extends as far as a transom 8 (Figure 4) which closes off the after end of the boat and to which (a) power unit(s) can be attached.

The panel 6 has plates 9 fitting over the adjacent edges of panels 5 and 7 and has expansion braces 10 boltable to panel 5 and then expansible to tighten the floor in the boat. The edges of the panels are trapped under the overhang of the inflated buoyancy tube 2 (Figure 3).

Between the deck 4 and the floor 3 there are fitted two parallel inflatable tubes 11. Respective inflation valves 12 are accessible through parts 13 in the panel 6. The tubes 11 are spaced apart by about 50% of the width of the deck 4.

When the buoyancy tube 2 and the keel-formers 11 are inflated the deck 4 provides a reaction surface from which the tubes 11 act to press the floor 3 downwardly to form a W or catamaran section with twin keels 14 separated by a channel 15, 15'. The panels of the deck 4 are supported by the overhang of the buoyancy tube 2.

As can be seen in Figures 5 and 6 the inherent characteristic of a flexible floor 3 supported by spaced inflated keel-formers is to adapt its conformation to the load being experienced. Greater load deepens the channel between the twin keels 14 (15' as against 15). This gives good planing characteristics under any load conditions, something which is difficult to achieve for most flexible-bottomed inflatable boats.

CLAIMS:-

1. An inflatable boat having a keel formed by inflating an inflatable member or members constrained to lie between a flexible skin of the boat and a reaction surface characterised in that a multiple keel (14,14) is so formed.

2. An inflatable boat according to Claim 1, wherein the reaction surface consists of a rigid deck (4) overlying the flexible skin (3).

3. An inflatable boat according to Claim 1 or Claim 2, wherein the multiple keel is a twin keel whose inflatable members are two parallel tubes (11,11).

4. An inflatable boat according to Claim 3, wherein access to the inflatable tubes is gained through openings (13) in the rigid deck (4).

5. An inflatable boat according to Claim 3 or Claim 4, wherein the parallel tubes (11,11) are spaced apart by a distance equal to half the width of the deck.

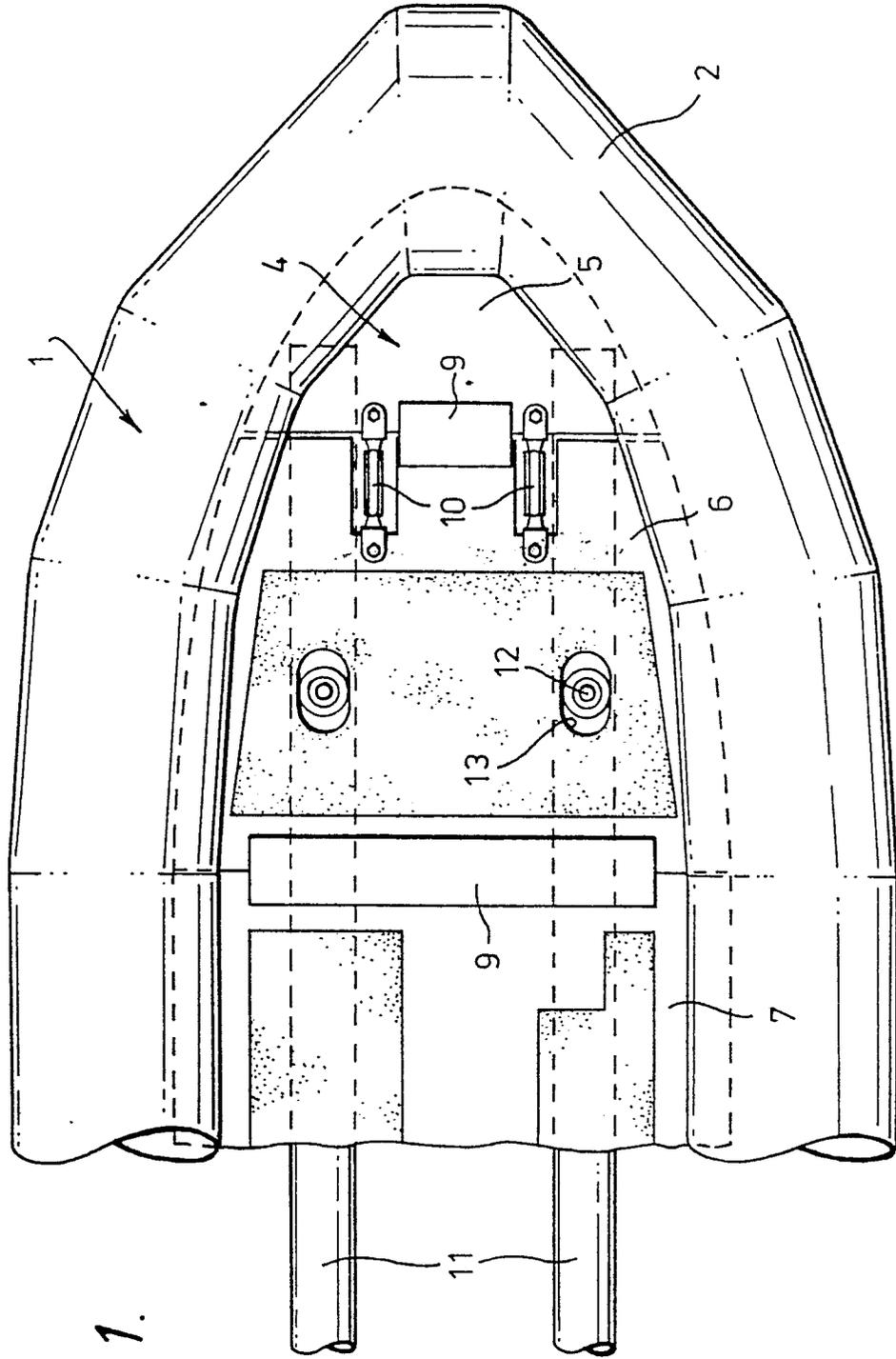


Fig. 1.

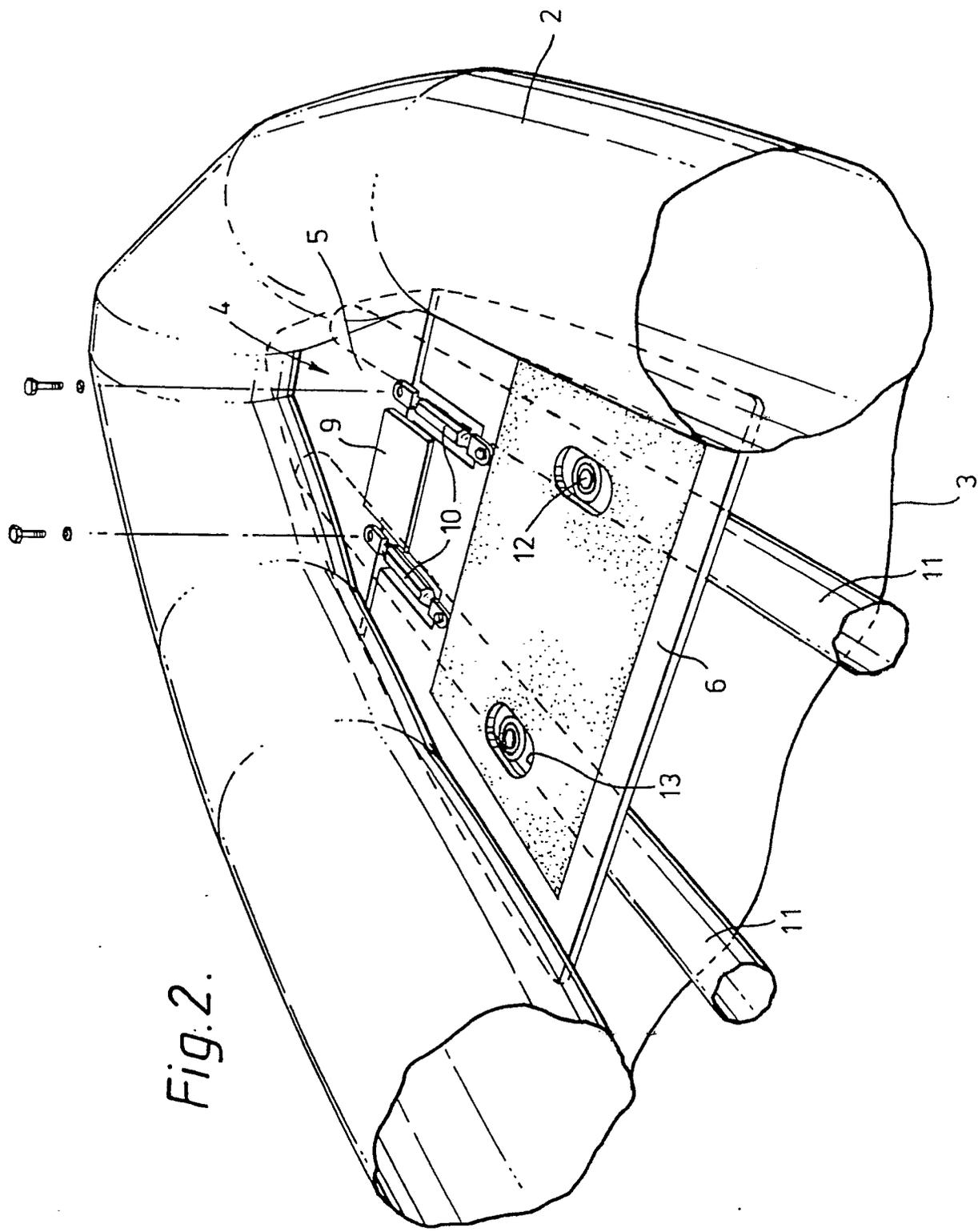


Fig. 2.

Fig. 3.

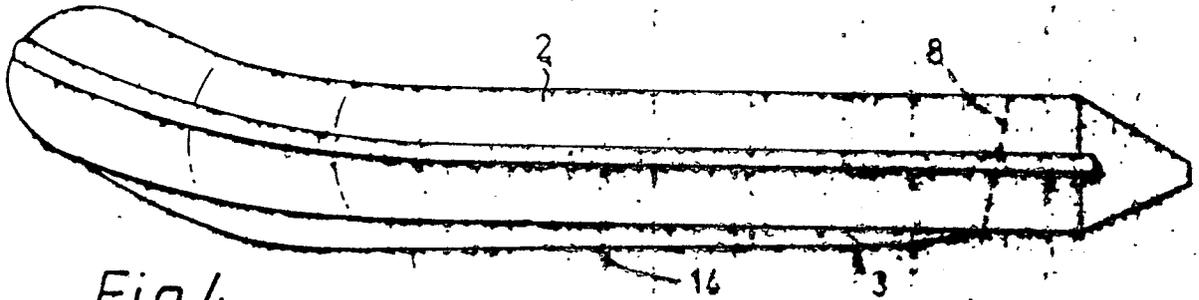
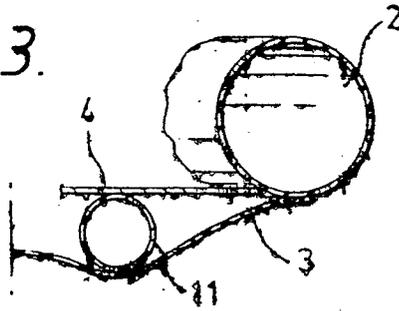


Fig. 4.

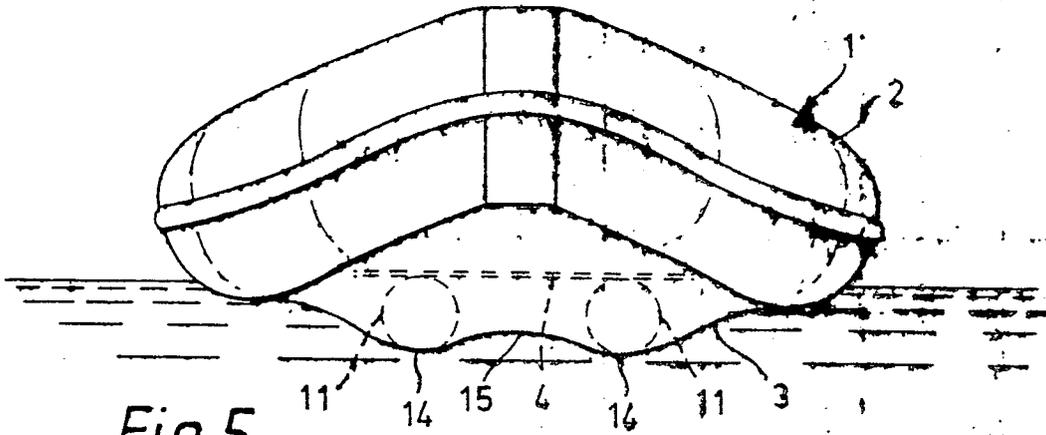


Fig. 5.

Fig. 6.

