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(71) Applicant: **Bilkert, Gerard Jelle**
**Hobbemakade 67**
**NL-1071 XH Amsterdam(NL)**

Applicant: **DIANA YACHT DESIGN B.V.**
**Bankrashof 3**
**NL-1183 NP Amstelveen(NL)**

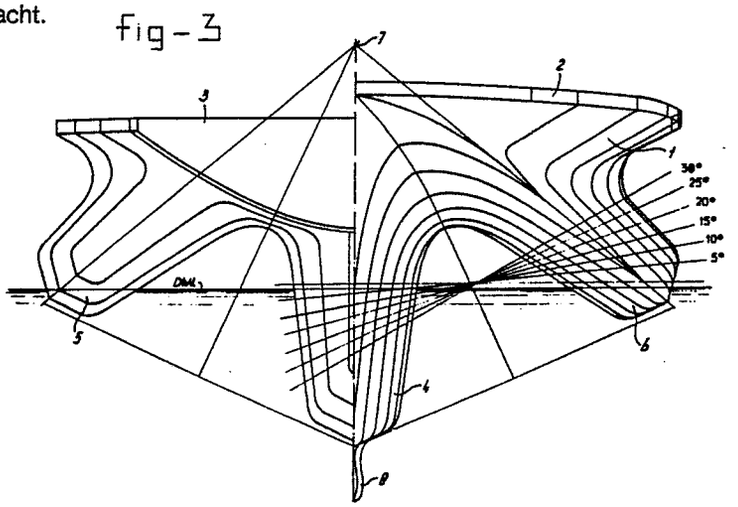
(72) Inventor: **Bilkert, Gerard Jelle**
**Hobbemakade 67**
**1071 XH AMSTERDAM(NL)**
Inventor: **Van Oossanen, Peter**
**Sparrenbos 33**
**6705 BB WAGENINGEN(NL)**

(74) Representative: **van der Beek, George Frans et al**
**Nederlandsch Octrooibureau Johan de Wittlaan 15 P.O. Box 29720**
**NL-2502 LS 's-Gravenhage(NL)**

## (54) Sailing yacht with three hulls.

(57) Sailing yacht comprising a cockpit (1) and three essentially identical hulls, a central hull (4) and two side hulls (5,6), going out from the bottom of the cockpit (1), the planes of symmetry of the two side hulls (5,6) intersecting each other in a plane of symmetry of symmetry of the cockpit (1) above the deck (2) of the sailing yacht.

Fig - 3

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# Sailing yacht with three hulls.

The invention relates to a sailing yacht with three hulls.

Such a sailing yacht is known in practice and in the literature as a trimaran.

In a trimaran vessel the planes of symmetry of the three hulls are essentially parallel to each other, in a vessel lying straight, essentially perpendicular to the water surface, and the two outermost hulls are generally at the same depth in the water. In a trimaran the outermost hulls are often smaller in dimension than the central hull.

In a trimaran and also a catamaran the hulls are in general slimmer than in a conventional vessel with a single hull, which means that the speed can be greater.

Although a trimaran exhibits better stability than a vessel with one hull when sailing before the wind, i.e. when the vessel is lying straight in the water, when sailing into the wind one of the side hulls can be lifted entirely out of the water and the others are largely immersed, so that the stability becomes doubtful. Besides, the width of the vehicle relative to the length is very great.

The object of the invention is to eliminate the disadvantages of the known sailing yacht with three hulls and to produce improved sailing behaviour when sailing into the wind.

This is achieved according to the invention in that the sailing yacht comprises a cockpit and three essentially identical hulls, a central hull and two side hulls, emerging from the bottom of the cockpit, the planes of symmetry of the two side hulls intersecting each other in a plane of symmetry of the cockpit above the deck of the sailing yacht.

During sailing into the wind the side hull at the weather side will be lifted entirely out of the water, as in the case of the known trimaran, but the vessel remains with the central hull and the other side hull in the water, so that a catamaran configuration is produced.

The three hulls preferably have essentially the same cross sectional shape and length.

The three hulls are preferably made slim, so that the vessel can sail very fast even when sailing into the wind.

The angle between the plane of symmetry of the cockpit and each of the side hulls is also preferably between 25 and 45 degrees, preferably 35 degrees.

Further advantages and features of the invention will emerge from the description with reference to the drawing which now follows, in which:

Fig. 1 is a side view of the vessel according to the invention, without the superstructure;

Fig. 2 is a top view of Fig. 1, and

Fig. 3 shows on the right a front view of the front part and on the left a rear view of the hind part of the vessel.

The cockpit, which is actually conventional in shape, is indicated by reference number 1, the deck by 2, and the transom by 3.

As can be seen from the left half of Fig. 3, the cockpit 1 in the example has a conventionally curved bottom, but the bottom can also be V-shaped.

A central hull 4 and two side hulls 5 and 6 now connect over virtually the entire length of the cockpit 1.

These hulls 4, 5 and 6 are slender in shape.

In Fig. 3 the waterline in indicated by DWL for sailing before the wind, i.e. when the vessel is lying straight.

In this position the central hull 4 lies virtually entirely in the water, and the side hulls 5 and 6 only with their bottom ends. The cockpit 1 is above the surface of the water.

As can be seen from Fig. 3, the two so-called tunnels between the hulls 4 and 5 and 4 and 6 are raised high above the surface of the water.

The planes of symmetry of the three hulls 4, 5 and 6 intersect each other in a line 7 above the deck 2 of the vessel. The angle between the plane of symmetry of each side hull and the cockpit is about 35 degrees, with 25 to 45 degrees as limits. This means that with an angle of inclination of approximately 35 degrees the central hull and one of the side hulls over the part sticking into the water are equal and each form an angle of about 17.5 degrees with the plane perpendicular to the water surface.

The considerable lateral surface of the two immersed hulls during sailing into the wind at an angle of inclination will be able to produce a great transverse force, so that fitting a keel to prevent sagging to leeward will be unnecessary in most cases. This very great advantage is also due to the fact that the hulls are very slim, which means not only that, compared with a single-hull vessel, low resistance is met, but also that there is high transverse force when a small drift angle is assumed, as is usual in the case of sailing yachts.

The generation of a high transverse force when sailing into the wind and the experiencing of a relatively small resistance force in the process is due to the slimness of each of the hulls, which means both that more lift is produced and that considerably less wave resistance is caused. The current round each of the hulls is much more comparable to that of a wing profile than in the case of a single-hull vessel. The transverse force

produced in this way, which forms an equilibrium with the transverse force caused on the sails by the wind, can thereby already be produced with a smaller angle of drift of the hull than in the case of a singlehull vessel. A single-hull vessel therefore needs a keel to enable it still to produce the required transverse force with angles of drift which are not so great. This makes the maximum draught in the case of a single-hull vessel relatively great compared with the present yacht.

The great width of the present three-hull yacht provides great transverse stability, which is important for sailing into the wind. In most cases a keel will therefore in the present case not be necessary for stability and the generation of transverse forces.

The central hull 4 can be provided with a keel 8 if desired.

During sailing into the wind the side hull 5 or 6 on the weather side comes entirely out of the water when the angle of inclination of the vessel exceeds 5 degrees.

## Claims

1. Sailing yacht with three hulls, characterized in that the sailing yacht comprises a cockpit and three essentially identical hulls, a central hull and two side hulls, going out from the bottom of the cockpit, the planes of symmetry of the two side hulls intersecting each other in a plane of symmetry of the cockpit above the deck of the sailing yacht.

2. Sailing yacht according to Claim 1, characterized in that the three hulls have essentially the same cross sectional shape and virtually the same length.

3. Sailing yacht according to Claim 1 and/or 2, characterized in that the three hulls are of slim design.

4. Sailing yacht according to Claim 1, 2 and/or 3, characterized in that the angle between the plane of symmetry of the cockpit and each of the side hulls is between 25 and 45 degrees, preferably 35 degrees.

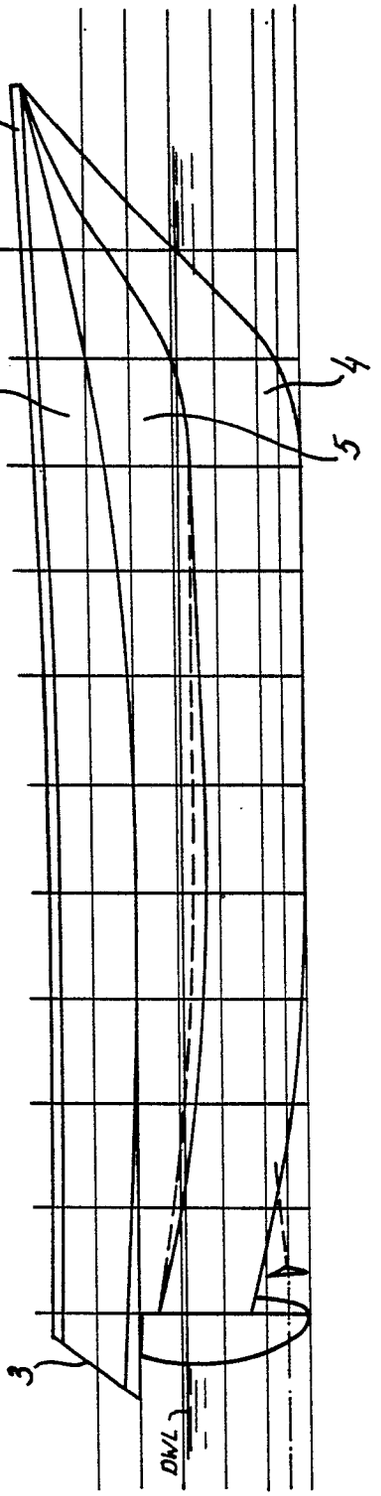


Fig-1

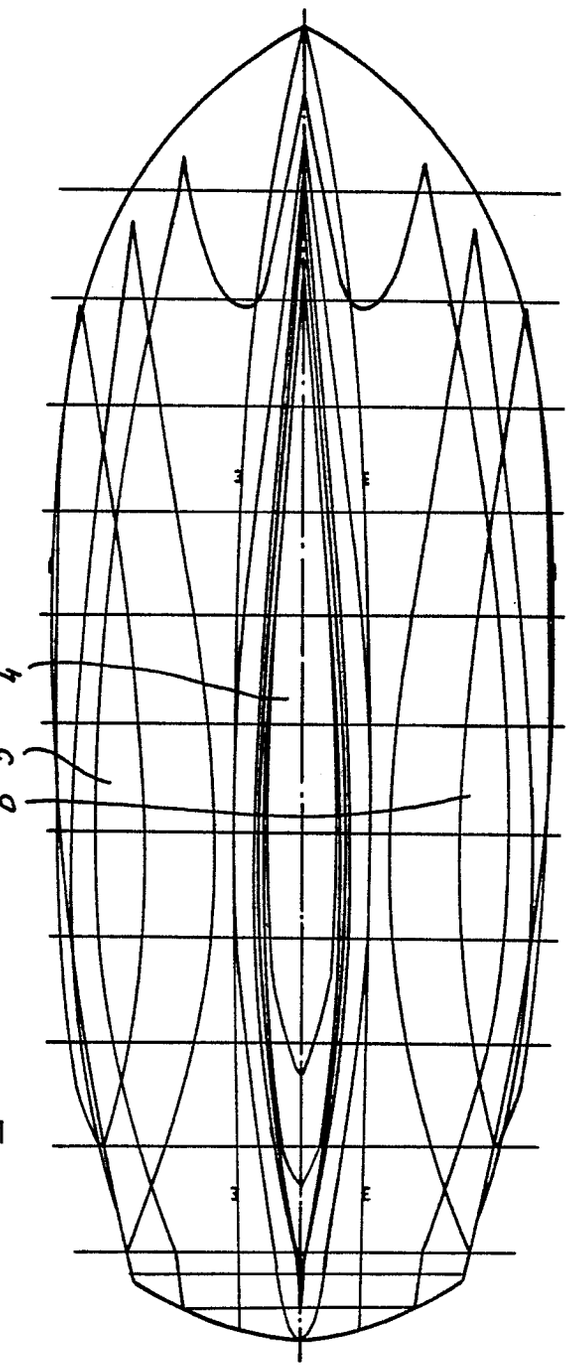


Fig-2

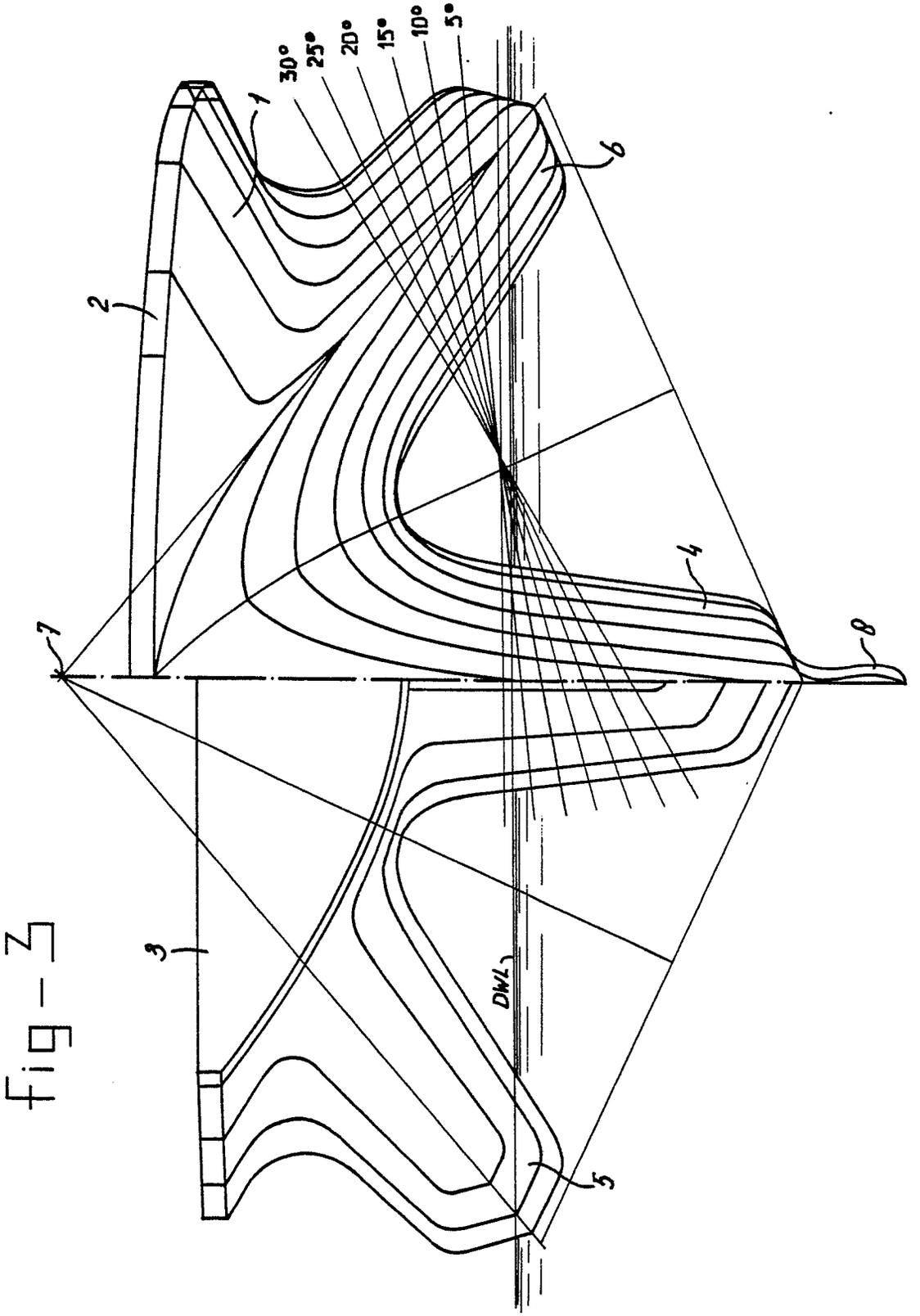


Fig-2

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# EUROPEAN SEARCH REPORT

Application Number

EP 87 20 2245

## 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.4) |
|---|---|---|---|
| A | FR-A-1 546 885 (WAQUET)<br>* Page 2, abstract, points 2,3,8; figure 1 * | 1,2,3,4 | B 63 B 1/12 |
| A | GB-A- 854 292 (MANNERS)<br>* Whole document * | 1,2 | |
| A | US-A-4 445 453 (MORGAN)<br>* Figures 3,4 * | 1 | |
| A | FR-A-2 554 410 (GARDEBLE) | 1 | |

TECHNICAL FIELDS SEARCHED (Int. Cl.4)

B 63 B

The present search report has been drawn up for all claims

| Place of search | Date of completion of the search | Examiner |
|---|---|---|
| THE HAGUE | 24-02-1988 | DE SCHEPPER H.P.H. |

CATEGORY OF CITED DOCUMENTS

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