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(54) **Sail unit of reduced dimensions that is easy to transport**

(57) A sail unit, characterized in that it comprises two half-shells joined together, which define a double-hull bottom body, comprising a first hull and a second hull joined together by a substantially plane portion, a cockpit with the stem open, and a deck surface, raised with respect to said cockpit (11).

The aforesaid bottom body is provided with a slit for the passage of a centreboard.

The transom of the aforesaid sail unit is provided with means for fixing a helm.

The aforesaid deck surface is provided with a mast step for resting and supporting a mast, as well as fixing points for the standing rigging of said mast.

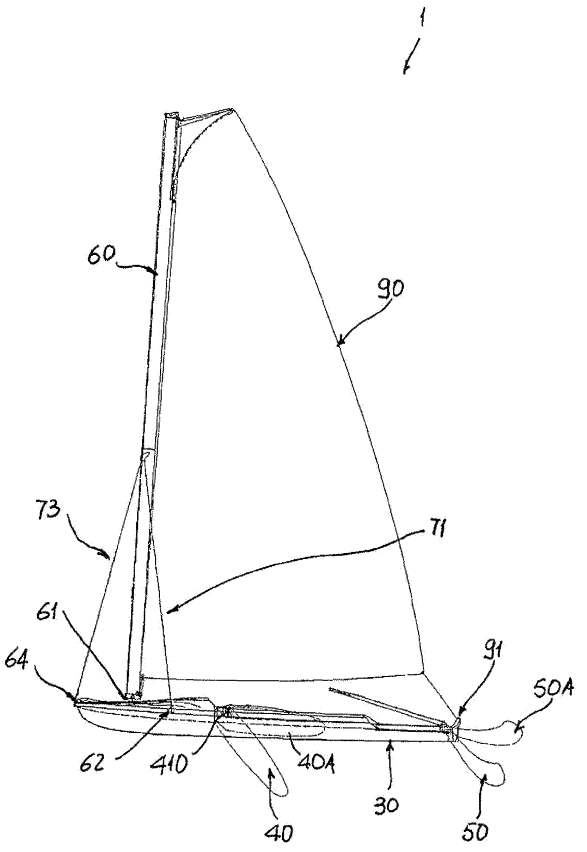

FIG. 3

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Description

[0001] The present invention relates to a sail unit, in particular to a sail unit of reduced dimensions and weight, which is easy to transport and simple to equip.

[0002] Within the framework of the sport of sailing, both competition sailing and pleasure sailing, for some time now there has been known the practice of windsurf, which is an extreme synthesis of principles long used in sailing.

[0003] As is known, this consists, in fact, of a board with a sail that is mounted on an articulated mast, which is sustained and controlled by the windsurfer only by means of the boom. Since it is without a rudder or helm, the board is directed both by acting on the inclination of the mast and by exerting a thrust with one's feet, also according to the condition of windsurfing (displacement or planing).

[0004] Amongst the obvious advantages that are offered, it is certainly possible to mention the ease of transportability given that the overall dimensions of the board itself and the corresponding equipment are relatively modest.

[0005] However, it should be pointed out that the practice of this sport is quite tiring, or at least far from comfortable, both on account of the position that must be maintained and on account of the effort that must be made to manoeuvre the means.

[0006] Furthermore, the sailboard is not usable simultaneously by two persons.

[0007] Once again in the sailing field, generally defined by the term "dinghies" is a heterogeneous group of watercraft of relatively small dimensions, without a cabin, which have in common the fact of having a centreboard.

[0008] Apart from some watercraft designed for children (Optimist type), dinghies generally require carriers for road transport and launching, given that they can even reach dimensions and displacements that are by no means indifferent (for example, respectively, a little more than 6 m and approximately 160 kg in the case of the Flying Dutchman).

[0009] On the basis of the above considerations, there emerges the need to have available a sail unit that will constitute a more comfortable alternative to a sailboard without incurring in some of the problems typical of dinghies.

[0010] Consequently, the main aim of the present invention is to provide a sail unit that will overcome the drawbacks described above.

[0011] In the framework of this task, a purpose of the present invention is to provide a sail unit that is easy to transport.

[0012] Another purpose of the present invention is to provide a sail unit that can be used simultaneously by two persons.

[0013] A further purpose of the present invention is to provide a sail unit that will be convenient and comfortable to use, as compared to a sailboard.

[0014] Yet another purpose of the present invention is to provide a sail unit that will present a good nautical quality.

[0015] Not the least important purpose of the present invention is to provide a sail unit that is reliable and relatively easy to produce at competitive costs.

[0016] The above task, as well as the above and other purposes that will appear more clearly from the ensuing description, are achieved through the sail unit, according to the following claim 1.

[0017] In its most general definition, the sail unit, according to the invention, comprises two half-shells that are joined together, which define:

- a bottom body with double hull, comprising a first hull and a second hull joined together by a substantially plane portion; and
- a cockpit with an open stem and a deck surface raised with respect to said cockpit.

[0018] The bottom body is moreover provided with a slit for the passage of a mobile centreboard, whilst the transom is provided with means for fixing a helm. Finally, the deck surface is provided with a mast step for resting and supporting a mast, as well as with fixing points for the standing rigging of said mast.

[0019] One of the main advantages of the sail unit according to the invention derives from its constructional simplicity and from its reduced dimensions. The fact that the structure made up of two half-shells in fact makes it possible to obtain, in a relatively simple way, a unit that combines the characteristics of transportability and manoeuvrability typical of sailboards with the nautical characteristics typical of classic sailing boats of the centreboard type. Even though the unit according to the invention is of relatively reduced dimensions and hence easily transportable, it can be used simultaneously by two persons and, as compared to sailboards, affords the possibility of being manoeuvrable even from a sitting position and hence with a relative degree of comfort and convenience.

[0020] Further characteristics and advantages will emerge more clearly from the description of preferred, though non-exclusive, embodiments of the sail unit according to the present invention, illustrated by way of non-limiting example in the annexed drawings, in which:

- Figure 1 is a plan view of a first half-shell that constitutes the structure of the sail unit according to the invention;
- Figure 2 is a plan view from beneath of a second half-shell that constitutes the structure of the sail unit according to the invention;
- Figure 3 is a side view of a first embodiment of a sail unit according to the invention;
- Figure 4 is a side view of a second embodiment of a sail unit according to the invention; and
- Figure 5 is a side view of a third embodiment of a sail unit according to the invention.

[0021] With reference to the above figures, the sail unit 1 according to the invention, in its most general embodiment, comprises a structure made up of two half-shells 10 and 20 illustrated in detail in Figures 1 and 2. The half-shells 10 and 20 are joined through coupling surfaces (not illustrated) and define the structure of the sail unit 1. Said structure is constituted by a bottom body 30 of the double-hull type, in so far as it comprises a first hull 31 and a second hull 32, joined together by a substantially plane portion 33.

[0022] The top half-shell 10 defines a cockpit 11 with the stem 12 open and a deck surface 13 raised with respect to said cockpit 11. The deck surface 13 is provided with a mast step 61 for resting and supporting a mast 60 (illustrated hereinafter), as well as fixing points 62, 63 and 64 for the standing rigging of the mast 60. In addition, the transom 12 is provided with means 51 for fixing a helm 50, illustrated in greater detail in what follows. As may be seen from Figure 2, the bottom body 30 is provided with a slit 34 for the passage of a centreboard 40.

[0023] It is already evident from this set of characteristics what are the advantages of the sail unit according to the invention. The sail unit 1 has in fact all the features typical of a dinghy of a classic type (centreboard, rigging and equipment, cockpit, and other characteristics that will be presented in what follows) allied to the ease of transport typical of sailboards. Furthermore, the shape of the bottom body, with double hull, bestows upon the unit excellent nautical performance in terms of speed.

[0024] In this connection, as may be evinced from Figure 2, the first and second hulls 31 and 32 are conveniently the same as one another and have particularly effective waterlines.

[0025] Taking in fact as reference the longitudinal plane that joins the stem 311 and 321 with the midpoint 312 and 322 of the transom or sternboard of each hull 31 and 32, said hulls have a cross section that is asymmetrical with respect to said longitudinal plane, with an outer half-hull 315 and 325 and an inner half-hull 316 and 326, the outer half-hull 315, 325 having a larger convexity than the inner half-hull 316, 326.

[0026] Furthermore, the substantially plane portion 33 that joins the first hull 31 to the second hull 32 has, in a position corresponding to the forward part of the sail unit 1, a substantially rectilinear edge 331 that joins the top part 317 and 327 of the stem of said first and second hulls 31 and 32.

[0027] The result is hence a sail unit with excellent nautical qualities and convenience of manoeuvre albeit having relatively reduced dimensions.

[0028] In this connection, the two half-shells 10 and 20 can be conveniently shaped in such a way that from their union the deck surface 13 will define an internal space that presents at least one opening that gives out onto said cockpit 11. Preferably, as illustrated in Figure 1, two openings 130 and 131 are present, which given out onto the cockpit 11 and enable accessibility to the internal space, which can be used for stowing equipment or else be kept free as reserve buoyancy.

[0029] Furthermore, as illustrated in Figure 1, even though the cockpit 11 has an open stem 12, it is conveniently delimited, for at least a portion thereof, by raised surfaces that define sitting surfaces for the person or persons that use it. We shall recall in fact that, unlike sailboards, the unit according to the invention can be used also by two persons simultaneously. The presence of the sitting surfaces affords the possibility of manoeuvring from a sitting position, thus preventing the need for a tiring position imposed by sailboards.

[0030] Unlike traditional technical solutions, the present invention then combines the peculiarities of the sailboard with those of centreboard watercraft.

[0031] According to a first embodiment of the sail unit 1 according to the invention, illustrated in Figure 3, the equipment of the unit can be of the type traditionally used in dinghies. In practice, according to this embodiment, the equipment is constituted by a mast 60, and the corresponding standing rigging comprises a first backstay 71 and a second backstay 72 (only one of which is illustrated), which are set symmetrically with respect to said mast 60, and a forestay 73.

[0032] Advantageously, there is moreover present a sheet block 91 for the boomsheet 90, appropriately set in a position corresponding to the transom 12.

[0033] The sail unit 1 according to the invention moreover has a centreboard 40, which, as illustrated in the examples of the attached Figures 3-5, conveniently rotates around a pin 410 between a first position 40A, in which it is entirely lifted up within the bottom body 30, and a second position, in which it is extended on the outside of said bottom body 30 in a position of hydrodynamic lift.

[0034] In the same way, also the helm 50, fixed to the stem 12, conveniently rocks between a raised position 50A and a working position in which it is immersed.

[0035] In this way, both transport and launching of the unit are facilitated in so far as the dimensions can be reduced. From the nautical standpoint, the possibility of varying the position of the centreboard 40 makes it possible to vary the lift thereof and the centre of lateral resistance according to the requirements and the sailing mode of the watercraft, with the known advantages that are encountered in centreboard boats.

[0036] According to an alternative embodiment of the invention, illustrated in Figure 4, the mast step 61 comprises an articulated joint, for example a universal joint, which enables the mast 60 to assume different inclinations. In fact, as may be seen from Figure 4, thanks to the presence of an articulated joint in a position corresponding to the mast step 61, the mast can be inclined, for example, from the position 60 to the position 60A; in this way, the position of the sail centre and/or of the angle of incidence of the boomsheet with respect to the wind can be varied according to the requirements and the sailing modes.

[0037] In the embodiment illustrated in Figure 5, the

standing rigging comprises a first curved spar 81 and a second curved spar 82 (only one of which is illustrated) positioned symmetrically with respect to the mast 60. Each of said spars 81 and 82 has both a first end 811 and 821, fixed to the mast 60, and a second end 812 and 822, fixed in the deck. Preferably, the two spars 81 and 82 are joined together so as to form a single rigid structure for supporting the mast 60, said structure being fixed in the deck, in a position corresponding to the ends 812 and 822, ahead of the mast, in a position corresponding to the point where the two spars 81 and 82 meet.

[0038] This equipment of an innovative type constitutes a considerable advantage as compared to traditional equipment constituted by shrouds and stays, both on account of the ease with which it can be fitted and on account of the possibility that is afforded of adjusting the position and inclination of the mast.

[0039] As may be seen from Figure 4, in fact, the point of fixing of the standing rigging in the deck can be varied easily, for example by sliding the end of the spar 82 from point 822 to point 822A. In this way, the mast will come to occupy the position 60A, with consequent variation of the sail centre, and will be sustained by the supporting structure comprising the spar 82 that will be in the position 82A.

[0040] According to an alternative embodiment, illustrated in Figure 5, the mast step 61 comprises a rail, which enables longitudinal movement of the foot of the mast. In this way, it is possible to displace the foot of the mast from the position 61 (typical, for example, when sailing close to the wind) to the position 61B (typical, for example, when sailing close off the wind) by varying at the same time the position of the boomsheet (from 90 to 90B) and hence maximizing the efficiency of the unit 1 at all sailing modes.

[0041] Once again from Figure 5, it may also be noted that the sail unit 1 according to the invention affords the possibility of reefing the boomsheet, for example reducing it to approximately the surface 90C.

[0042] It is evident that this technical solution is considerably advantageous in so far as it enables adaptation of the plane sail at all sailing modes and in all wind conditions that may be encountered.

[0043] The technical solutions adopted for the sail unit according to the invention enable the pre-set tasks and purposes to be achieved fully. In particular, the sail unit according to the invention presents certain advantages typical of sailboards, such as ease of transport, for example on the roof of an automobile, hence not requiring carriers for road transport or for launching, as is typically the case for centreboard sailing boats.

[0044] At the same time, the sail unit according to the invention maintains certain characteristics and peculiarities of centreboard boats, such as nautical performance, corresponding convenience of use, possibility of use also by two persons simultaneously, features that are, instead, not found in sailboards.

[0045] The sail unit thus conceived may undergo numerous modifications and variations, all of which fall within the framework of the inventive idea. In addition, all the items may be replaced by other technically equivalent ones.

[0046] In practice, the materials used, as well as the dimensions and the contingent shapes, may be any whatsoever according to the requirements and the state of the art.

Claims

1. A sail unit (1), **characterized in that** it comprises two half-shells (10, 20) joined together, which define: a bottom body (30) with double hull, comprising a first hull (31) and a second hull (32), joined together by a substantially plane portion (33); a cockpit (11) with an open stem (12) and a deck surface (13) raised with respect to said cockpit (11), said bottom body (30) being provided with a slit (34) for passage of a centreboard (40), the transom (12) being provided with means (51) for fixing a helm (50), said deck surface (13) being provided with a mast step (61) for resting and supporting a mast (60), as well as with fixing points (62, 63, 64) for the standing rigging of said mast.

2. The sail unit (1) according to Claim 1, **characterized in that** said first hull (31) and said second hull (32) are the same as one another and have a cross section that is asymmetrical with respect to a longitudinal plane that joins the stem (311, 321) with the midpoint (312, 322) of the transom of each hull (31, 32), said longitudinal plane defining an outer half-hull (315, 325) and an inner half-hull (316, 326), the outer half-hull (315, 325) having a larger convexity than the inner half-hull (316, 326).

3. The sail unit (1) according to Claim 1 or Claim 2, **characterized in that** said substantially plane portion (33) that joins said first and second hulls (31, 32) has, in a position corresponding to the forward part of said sail unit (1), a substantially rectilinear edge (331) joining the top part (317, 327) of the stem of said first and second hulls (31, 32).

4. The sail unit (1) according to one or more of the preceding claims, **characterized in that** said centreboard (40) is able to turn around to a pin (410) between a first position (40A), in which it is entirely raised within said sail unit (1), and a second position in which it is extended on the outside of the bottom body (30) in a position of hydrodynamic lift.

5. The sail unit (1) according to one or more of the preceding claims, **characterized in that** it comprises an internal space defined by said deck surface (13), said internal space having at least one opening (130,

131) that gives out onto said cockpit (11).

6. The sail unit (1) according to one or more of the preceding claims, **characterized in that** at least one portion of said cockpit (11) is delimited by raised surfaces that define sitting surfaces.

7. The sail unit (1) according to one or more of the preceding claims, **characterized in that** said standing rigging comprises a first backstay (71) and a second backstay (72), which are set symmetrically with respect to said mast (60), and a forestay (73).

8. The sail unit (1) according to one or more of the preceding claims, **characterized in that** said mast step (61) comprises a universal joint that enables the mast (60) to assume different inclinations (60, 60A).

9. The sail unit (1) according to one or more of the preceding claims, **characterized in that** said mast step (61) comprises a rail, which enables longitudinal movement of the foot of the mast (61, 61B).

10. The sail unit (1) according to one or more of the preceding claims, **characterized in that said** standing rigging comprises a first curved spar (81) and a second curved spar (82) positioned symmetrically with respect to the mast (60), each of said spars (81, 82) having a first end (811, 821) fixed to the mast (60) and a second end (812, 822) fixed in the deck.

11. The sail unit (1) according to one or more of the preceding claims, **characterized in that** the point of fixing in the deck (62, 63) of said standing rigging is slidable.

12. The sail unit (1) according to one or more of the preceding claims, **characterized in that** it comprises a sheet block (91) of the boomsheet (90) positioned in a position corresponding to the transom (12).

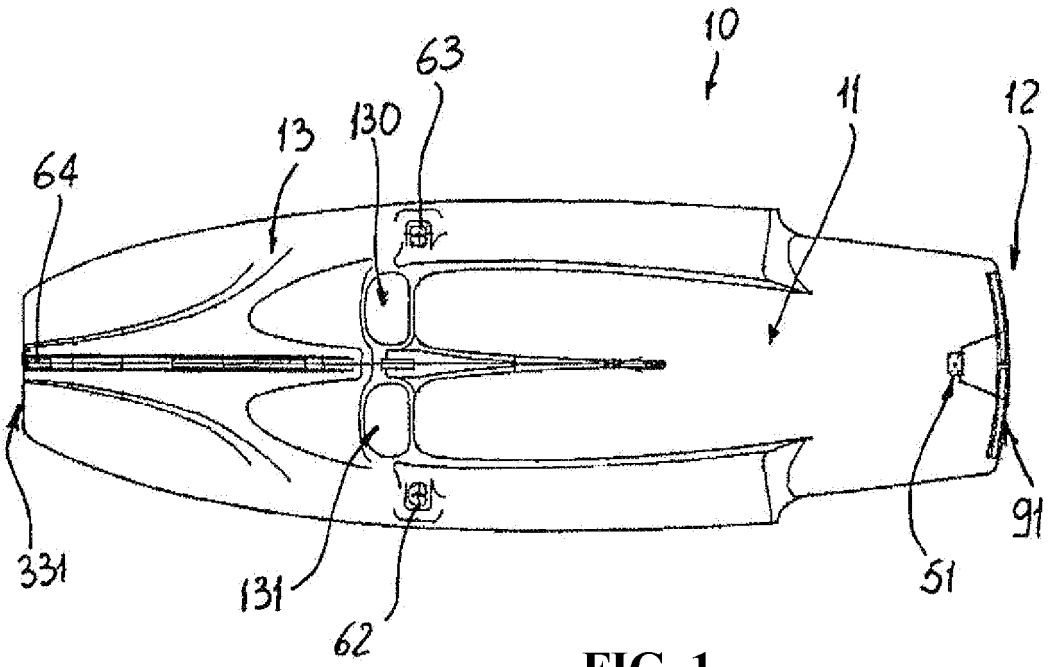
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FIG. 1

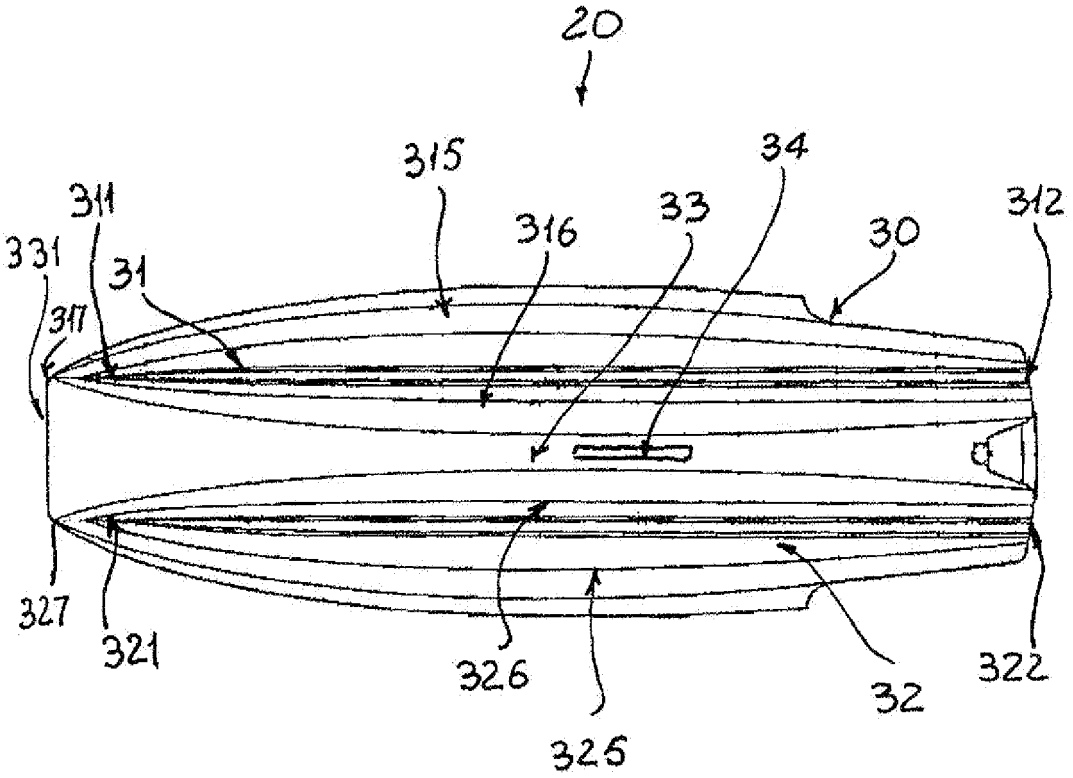
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FIG. 2

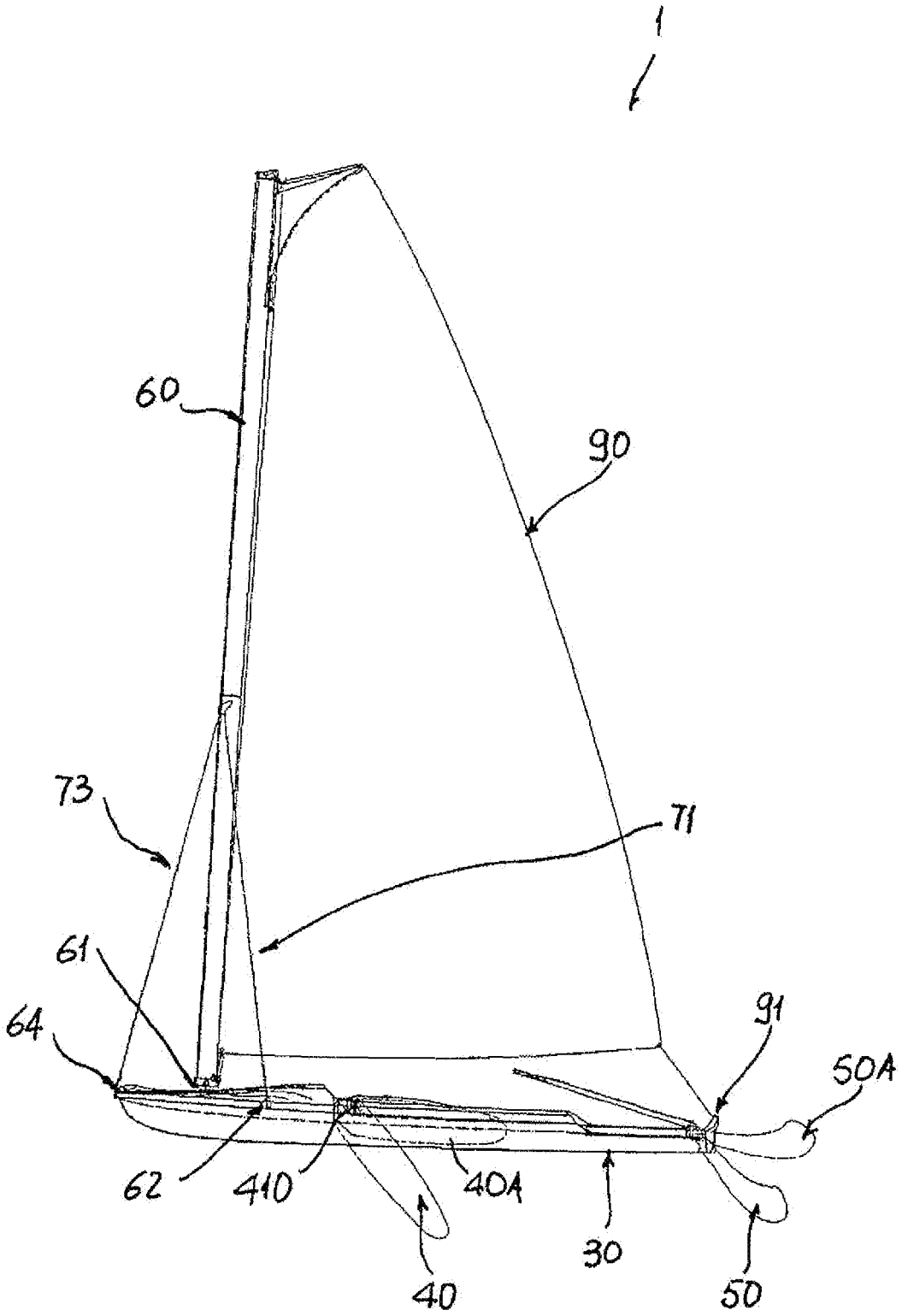

FIG. 3

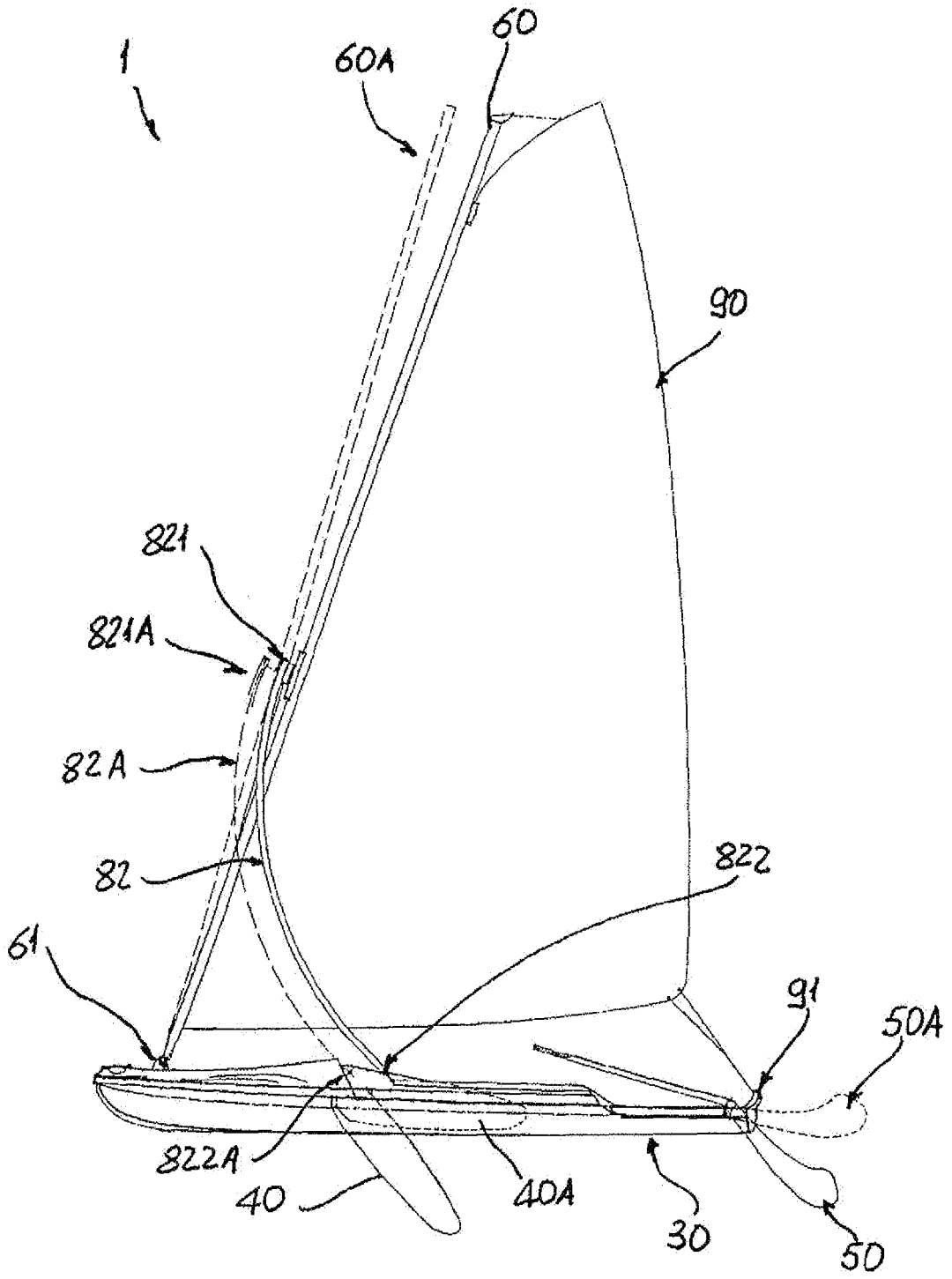

FIG. 4

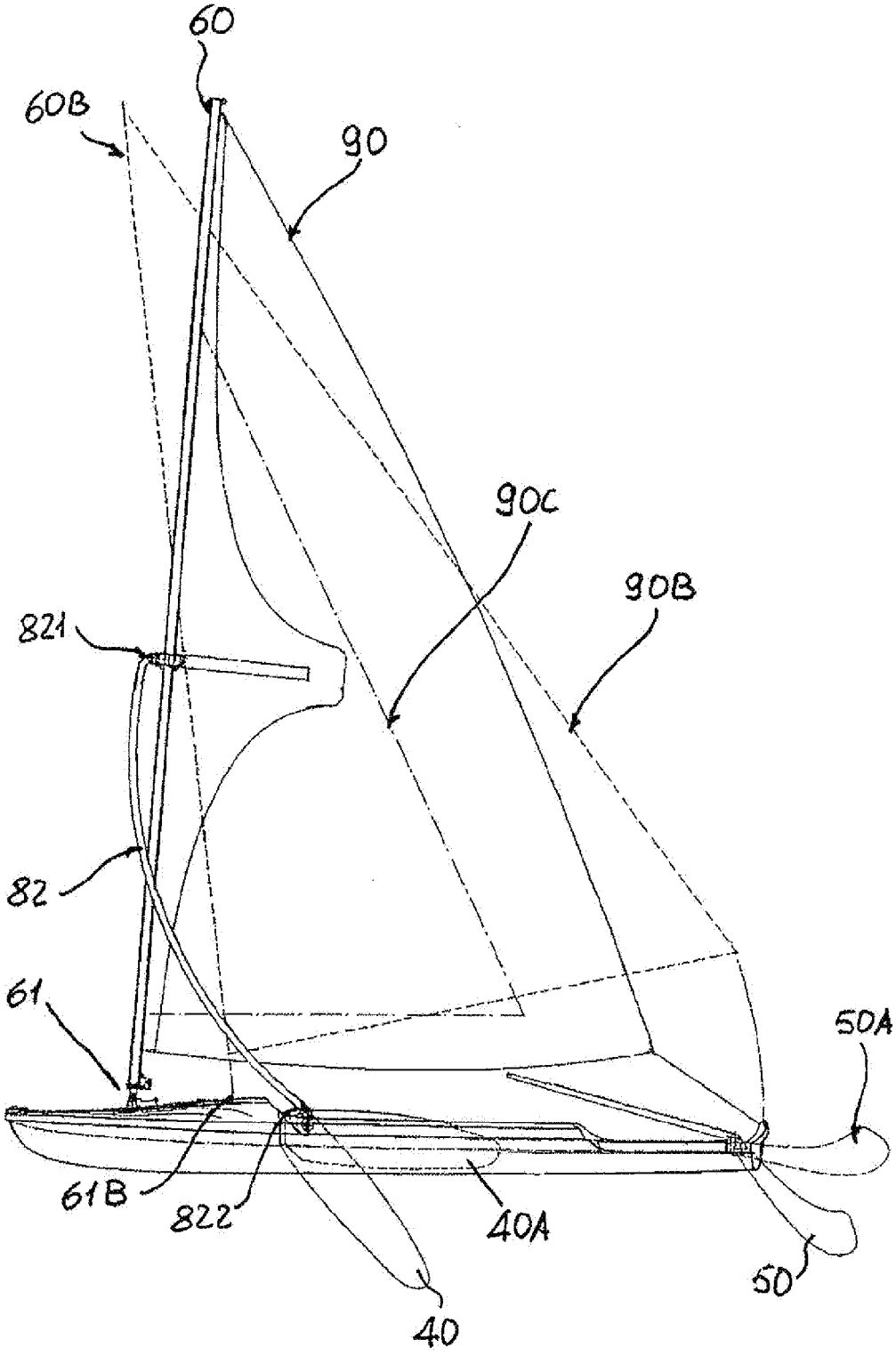

FIG. 5