

INSTRUCTIONS

(a) If Convention application insert "Convention"

(a)

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609069

(b) Delete one

APPLICATION FOR A (b) STANDARD/PETTY PATENT

(c) Insert FULL name(s) of applicant(s)

I/We (c)

JEAN-PAUL BAREAUD

(d) Insert FULL address(es) of applicant(s)

Of (d)

16 rue des 4 Diabes
La Jarne
FRANCE

(e) Delete one

hereby apply for the grant of a (e) Standard/Petty Patent for an invention entitled

(f) Insert TITLE of invention

(f)

SAILING CRAFT

(g) Insert "complete" or "provisional" or "petty patent"

which is described in the accompanying (g)

specification.

(Note: The following applies only to Convention applications)

Details of basic application(s)

(h) Insert number, country and filing date for the/or each basic application

	Application No.	Country	Filing Date
(h)	European Application 86402457.5	France et al	4 November, 1986

APPLICATION ACCEPTED AND AMENDMENTS

ALLOWED 25-1-91

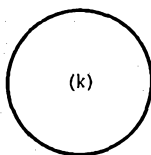
Address for Service:

PHILLIPS ORMONDE AND FITZPATRICK
Patent and Trade Mark Attorneys
367 Collins Street
Melbourne, Australia 3000

(i) Insert date of signing

Dated (i) 21 MARCH, 1990

(j) Signature of applicant(s) (For body corporate see headnote*)



(k) Corporate seal if any

(j) PHILLIPS ORMONDE & FITZPATRICK
Attorneys For:
JEAN-PAUL BAREAUD

David B Fitzpatrick

Note: No legalization or other witness required

PHILLIPS ORMONDE AND FITZPATRICK
Patent and Trade Mark Attorneys
367 Collins Street
Melbourne, Australia

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DECLARATION FOR A PATENT APPLICATION

INSTRUCTIONS

(a) Insert "Convention"
if applicable
(b) Insert FULL name(s)
of applicant(s)

(c) Insert "of addition"
if applicable
(d) Insert TITLE of
invention

(e) Insert FULL name(s)
AND address(es) of
Declarant(s)
(See headnote*)

(f) Insert FULL name(s)
AND address(es) of
actual inventor(s)

(g) Note how appli-
cant(s) derive(s)
title from actual
inventor(s)
(See headnote*)

(h) Insert country,
filing date, and
basic applicant(s)
for the/or EACH
basic application

(i) Insert PLACE of
signing

(j) Insert DATE of
signing

(k) Signature(s) of
Declarant(s)

Note: No legalization or
other witness required

In support of the (a) CONVENTION application made by
(b)

JEAN-PAUL BAREAUD

(hereinafter called "applicant(s) for a patent (c)
invention entitled (d)

for an

SAILING CRAFT

I/We (e)

Jean-Paul Bareaud
16 rue des 4 Diabes
La Jarne, FRANCE

do solemnly and sincerely declare as follows:

1. I am/~~We are~~ the applicant(s).
(or, in the case of an application by a body corporate)
1. ~~I am/~~We are~~ the actual inventor(s) of the invention.~~
(or, where the applicant(s) is/are not the actual inventor(s))
2. (f)

is/are the actual inventor(s) of the invention and the facts upon which the applicant(s)
is/are entitled to make the application are as follows:

(g)

(Note: Paragraphs 3 and 4 apply only to Convention applications)

3. The basic application(s) for patent or similar protection on which the application is based
is/are identified by country, filing date, and basic applicant(s) as follows:

(h)

Jean-Paul Bareaud
France et al (European application 86402457.5)
4 November, 1986

4. The basic application(s) referred to in paragraph 3 hereof was/were the first application(s)
made in a Convention country in respect of the invention the subject of the application.

Declared at (k)

Dated (l)

La Jarne
15 Mai 90

(m)

JEAN-PAUL BAREAUD

To: The Commissioner of Patents

(12) PATENT ABRIDGMENT (11) Document No. AU-B-80693/87
(19) AUSTRALIAN PATENT OFFICE (10) Acceptance No. 609069

(54) Title
CURVED MAST SAILING CRAFT

International Patent Classification(s)
(51)⁴ **B63H 009/04 B63H 009/06**

(21) Application No. : **80693/87** (22) Application Date : **04.11.87**

(30) Priority Data

(31) Number (32) Date (33) Country
86 402457 04.11.86 EP EUROPE

(43) Publication Date : **05.05.88**

(44) Publication Date of Accepted Application : **26.04.91**

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(56) Prior Art Documents
US 4474126
US 4469040
US 3598075

(57) Claim

1. Sailing craft having a mast which is curved on its top part and whose concavity faces towards the prow of the craft, and a mainsail attached to the mast along the convex side of said mast.

8. Sailing craft having a rotatable curved mast whose concavity faces towards the prow of the craft, a wishbone attached to said mast for adjusting its angular position and a lathed mainsail attached to said mast along its convex side.

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COMPLETE SPECIFICATION
(ORIGINAL)

Application Number:
Lodged:

Class

Int. Class

Complete Specification Lodged:
Accepted:
Published:

Priority

Related Art:

APPLICANT'S REFERENCE: 33100/D.1090

Name(s) of Applicant(s):

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Complete Specification for the invention entitled:

SAILING CRAFT

Our Ref : 73717
POF Code: 1149/76956

The following statement is a full description of this invention, including the best method of performing it known to applicant(s):



SAILING CRAFT

Some sailing craft of a sports type, such as, for example, sailboards, have a relatively high mast for supporting a sail of large area. This results in difficulties in terms of stability, so that only very experienced pilots can take part in major races in a sea which is at all rough. Moreover, a relatively large amount of force must be exerted in order to put the mast and the sail in place at the start.

10 Furthermore, on these craft which have a rotating mast controlled by a wishbone, it is difficult to attach a jib arranged in the usual way to the sail.

The present invention provides substantial improvements in terms of what has just been described and can be put into practice on all types of craft using a sail to propel them, such as sailboards, sand yachts, and all sailing boats (single-hull, multi-hull, etc.).

20 A first improvement constituting a first characteristic of the invention involves giving the mast a curve facing towards the front of the boat, the mainsail or principal sail being arranged on the mast on the same side as the convexity of the curve.

30 As a result of this improvement, it becomes possible to add a jib, of which the side, usually called the "hoist", has its tack no longer attached independently, as is customary, but fastened to the bottom of the mast, while the upper end of the hoist is likewise fastened to the mast in its upper part, the free top of the jib opposite the hoist receiving a sheet which makes it possible to adjust the unfurling of the jib towards the mainsail. This is the second of the improvements which are the subject of the invention.

In this arrangement, the corridor for the passage of the wind between the jib and mainsail opens between the hoist of the jib and the mast as a result of the curve of the latter. The sheet can be adjustably fastened to the mainsail securing system, so that an assembly comprising the mainsail and the jib follows the rotation of the mast,



without the need to change the adjustment of the jib, at least where small rotations are concerned.

As may be appreciated, this combination makes it possible to provide the pilot with a double sail controlled during the rotation of the mast. Consequently, it is possible to reduce the height of the mast considerably and thereby lower the point of application of the thrust of the wind or the centre of effort, at the same time having an equal or greater sail area. This results in a substantial
10 improvement in stability and a considerable reduction in the force required to put the mast in place initially or after a fall and to keep the mast in place during sailing. Moreover, the effect of adding the jib which is opposite the mainsail in relation to the mast is to bring the centre of effort nearer to the axis of rotation of the mast and therefore to reduce the force necessary to rotate the mast.

Other improvements will emerge from the following description, with reference to the drawings given by way of example.

20 FIG. 1 is an elevation view of a small sailing craft equipped with a mast according to the invention.

FIG. 2 is a view similar to FIG. 1, but shows a sailboard;

FIG. 3 is an end view of the sailboard and shows the sail rotated 90° in order to sail before the wind.

FIG. 4 is a view similar to that of FIG. 1, but shows a rigging which includes a jib.

FIG. 5 illustrates a special mounting of the jib for a rigging of a sailboard or similar craft.

30 FIG. 6 is a sectional view of FIG. 5 along the line VI-VI.

FIG. 1 shows a small sailing craft, for example of the drop-keel type, of which the mast 1, instead of being straight or slightly curved towards the stern, as is customary, on the contrary has a curve directed towards the prow. In the Figure, the curve of circular shape extends over an angle of approximately 30°. This angle can vary more or less, depending on the craft equipped and the



desired results. The curve can start at the step of the mast. The mast is equipped with a sail 2 attached by conventional means to the rear of the mast, that is to say on the same side as the convex part of the curve. Likewise, the sail is attached at its base to a boom 3 in the usual way.

As shown by the broken lines 1b representing a conventional straight mast of the same height as the curved mast, the sail area obtained by means of the curved mast is increased. As a result, for one and the same sail area, it is possible to reduce the height of the mast, and this is beneficial to stability.

The sail is preferably equipped with laths 4 to give it a certain amount of rigidity and to ensure, as far as possible, that its drop edge 2a follows a contour similar to that of the mast.

To allow the sail to hold in light squalls, it will advantageously be arranged in such a way that some of its surface near its drop edge can warp under the action of high wind pressure. For this purpose, the upper lath 4a made of flexible material will be fastened to the mast at its end 4b, whereas the other laths are free relative to the mast, merely being connected to the sail. The upper lath 4a, while at the same time being flexible, will have a sufficient cross-section to withstand a wind or normal force and bend only under heavy squalls, then allowing the sail to warp.

FIGS. 2 and 3 show the curved mast used on a sail-board.

As is known, in this type of craft the mast is mounted by means of a ball joint, so that it can rotate on itself and assume all angles of inclination, the rotation and inclination being controlled by means of a wishbone 5 held by the pilot.

It was found that, on these craft, the new mast has various advantages in addition to the possibility of reducing the height of the mast and consequently improving stability, while at the same time reducing the force



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necessary to put the mast in place after a fall.

The shape of the mast and of the sail associated with it gives rise to a mast nose 6 and a sail nose 7.

This shape allows better wind penetration and increases the suction effect when the craft comes up again close to the wind.

In FIG. 3, it will also be seen that, when the craft runs before the wind, the inclination of the mast is less than with a straight mast if the centre of effort 2b is
10 located vertically in line with the step of the mast, thus resulting in a considerable improvement in the manoeuvrability of the craft.

A jib 8 mounted in the usual way can be associated with the mast, as shown in FIG. 4. Moreover, this jib could be duplicated by another jib.

However, the present invention makes it possible to take advantage of the curve of the mast to mount the jib in a special way which reinforces the advantages already mentioned and which makes it possible to achieve others.

FIG. 5 illustrates this mounting in the particular
20 case of a rotating mast controlled by a wishbone 5. The hoist 9 of the jib 8 is secured to the mast at its upper end 10 and at its lower end 11, while attached to the top 12 of the jib (clew) opposite the hoist is a sheet 13 which can be fastened adjustably to the wishbone, for example by means of a cleat.

It will be seen that, in such an arrangement, the jib
8 can be unfurled opposite the mainsail 2 (FIG. 5), thereby forming between the two a channel 14 (FIG. 6) which opens
30 into the gap 17 between the curved mast and the hoist 9 of the jib. This channel, delimited by the mainsail and the jib, makes it possible to deflect a large airflow uniformly, at the same time collecting the various airstreams, thus ensuring a high propulsive thrust value.

The mainsail and the jib form an assembly, the orientation of which can be adjusted easily by action on the wishbone fastened to the mast, while for each orientation of the mainsail the relative orientation of the



jib can be changed by action on the sheet 13.

During tacking, it is sufficient for the pilot to release the sheet 13 from the cleat clamping it to the wishbone, in order to ensure that, as a result of the wind action, the jib veers to the other side via the channel 17 (FIG. 6). The sheet will then be reattached to a second cleat.

As will be understood from the preceding description, the invention makes it possible to solve the problem of mounting a jib in a rigging with a rotating mast, such as that of a sailboard.

The jib which forms an additional sail makes it possible to reduce the height of the mast even further for an equal or even a little larger total sail area and consequently increase the stability.

Furthermore, since the jib is opposite the mainsail 2 in relation to the mast, the centre of effort is nearer the axis of rotation of the mast, thus reducing the torque to be exerted by the pilot in order to hold the rigging as a whole in place or change its orientation.

The jib can be given a different shape from the conventional triangular shape. For example, in its part 15 opposite the hoist, it could have a rounded shape retained by means of a stiffened edge, so as to increase the surface of the jib and the overlapping of the mainsail, thus assisting the effect of collecting the airstreams.

The curved mast can be produced from any suitable materials: light wood, aluminum, pressed carbon fibers and resin, etc.

The curvature of the mast will depend on the materials used and on the area required for the sail.

On the other hand, it would not exceed the scope of the invention if, instead of a continuous curve, the mast were given a broken-line form or if there were any other addition making it possible to bring the top of the mast forwards towards the prow. The expression "curved" appearing in the claims is to interpreted in this sense.



The claims defining the invention are as follows:

1. Sailing craft having a mast which is curved on its top part and whose concavity faces towards the prow of the craft, and a mainsail attached to the mast along the convex side of said mast.
2. Craft according to claim 1, wherein the mast is curved over its entire length.
3. Craft according to claim 1, wherein the mainsail is lathed.
- 10 4. Craft according to claim 1, having a plurality of laths distributed along the length of the mainsail and wherein one of the top laths is fastened to the mast, the lath so fastened being made of flexible material, having a bending resistance set so that it bends only under a heavy squall for allowing the sail to warp.
5. Craft according to claim 1, having further a jib, the hoist of which is connected at its ends to the base and the top of the mast respectively, whilst the free top of the jib opposite the hoist is equipped with a sheet for
20 adjusting the unfurling of the jib.
6. Craft according to claim 5, wherein the mast is rotatable and has a wishbone attached thereto for adjusting its angular position, and wherein the said sheet is fastened to the wishbone adjustably.
7. Craft according to claim 5, wherein the said and the jib are arranged in such a way that the centre of effort is in the immediate vicinity of the axis of rotation of the mast.
8. Sailing craft having a rotatable curved mast whose
30 concavity faces towards the prow of the craft, a wishbone attached to said mast for adjusting its angular position and a lathed mainsail attached to said mast along its convex side.

DATED: 8 June 1989

PHILLIPS ORMONDE & FITZPATRICK

Attorneys for:

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David J. Phillips

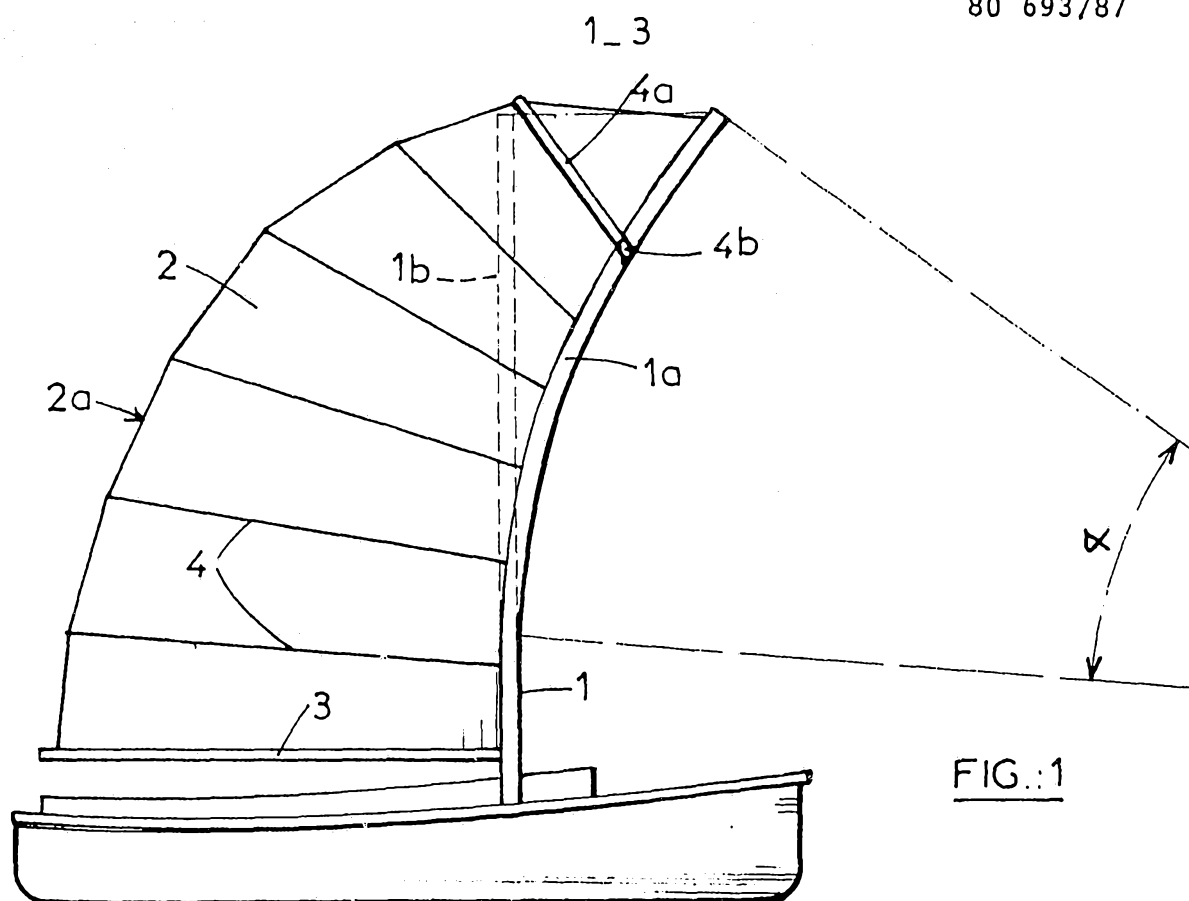
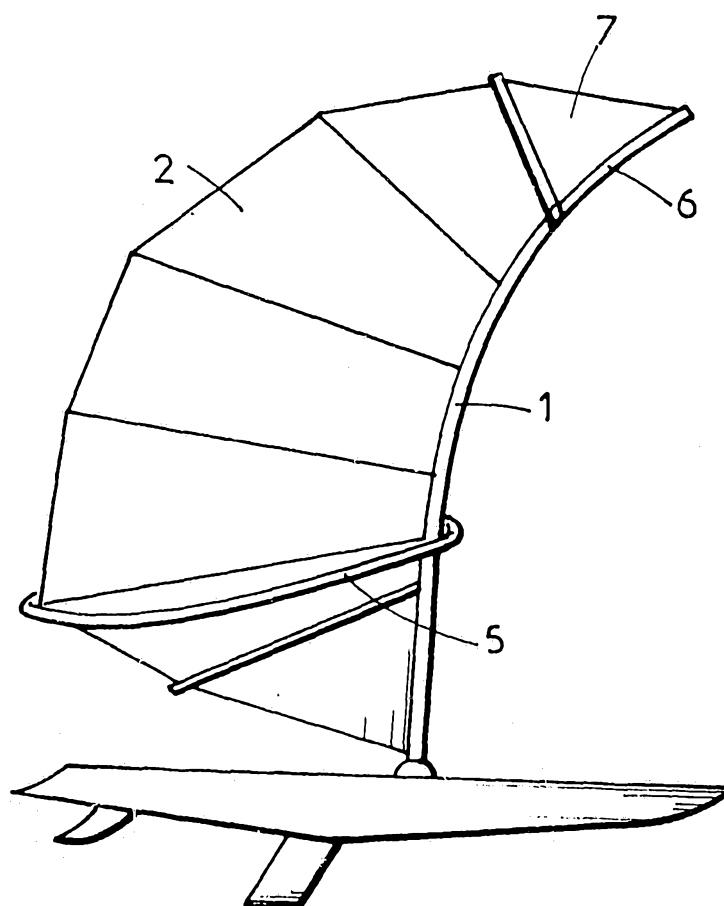


FIG. 2



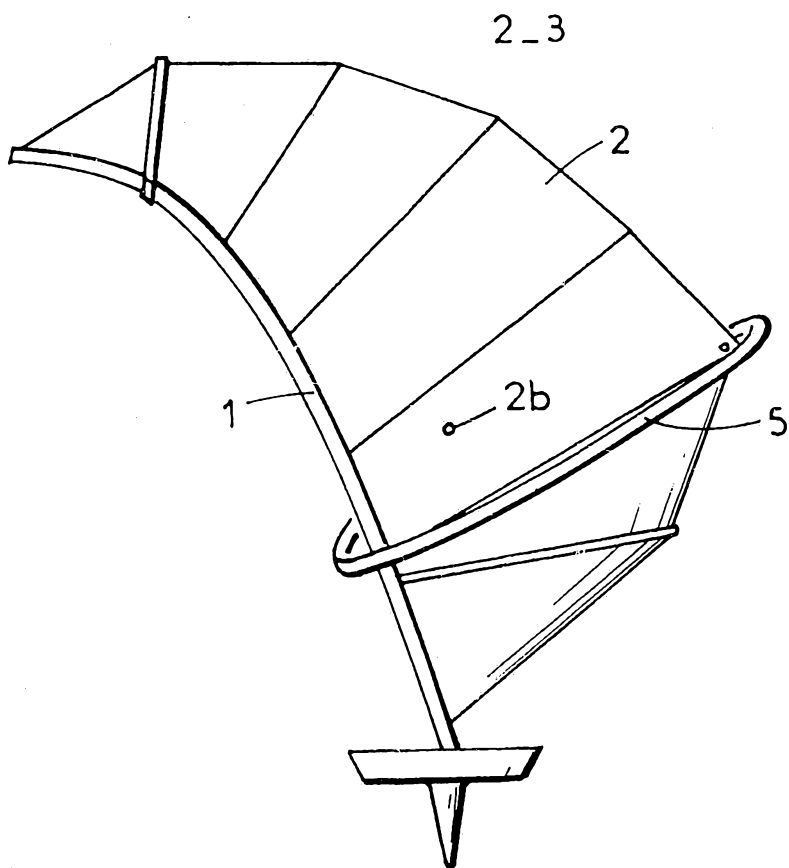


FIG. 3

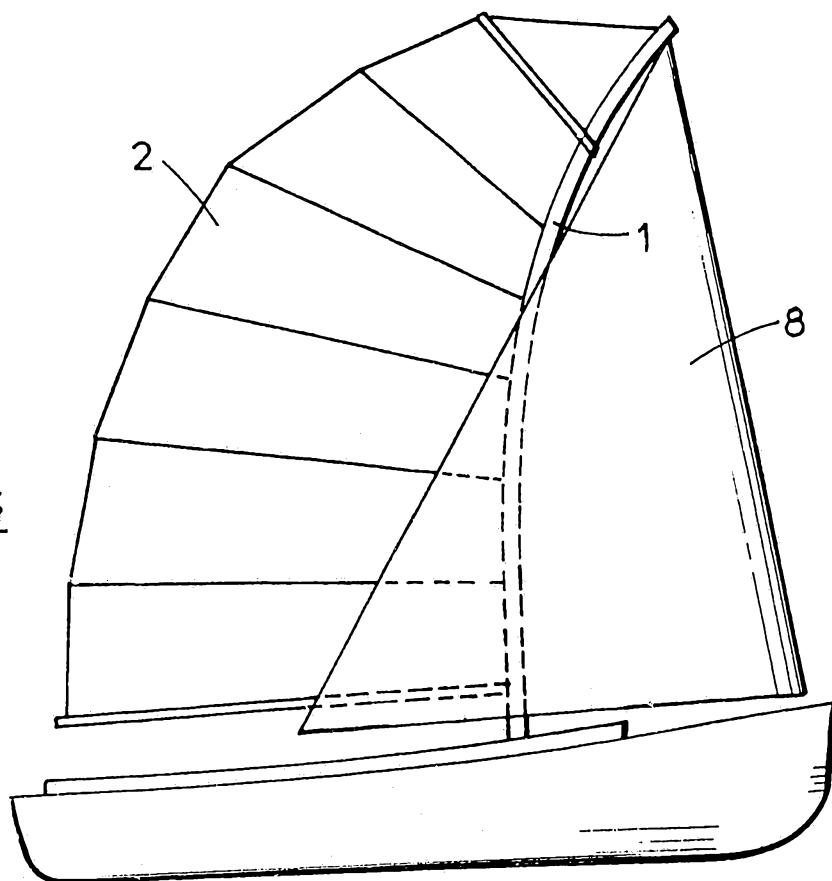


FIG. 4

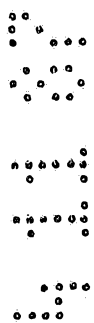
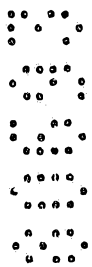


FIG.:5

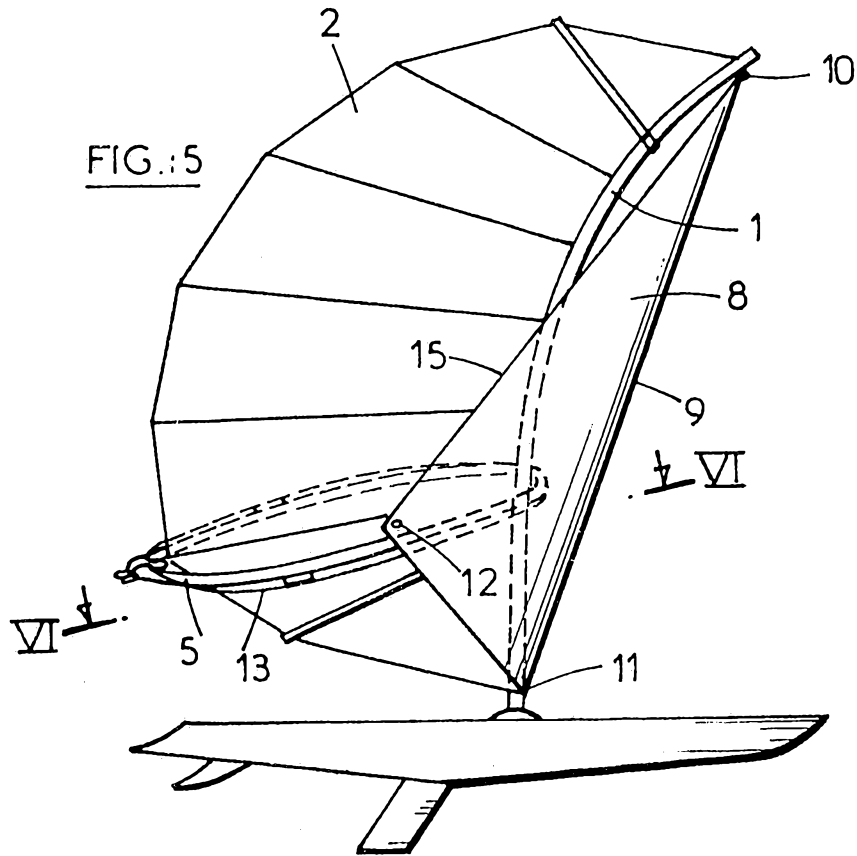


FIG.:6

