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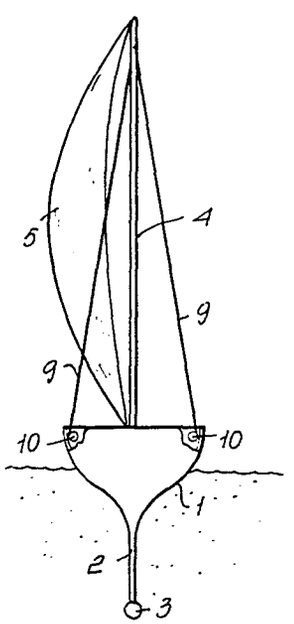
(54) Fin keel sailboat structure.

(57) The fin keel sailboat structure comprises a hull (1) provided with a fin keel (2) and carrying the mast (4) and sail (5). The peculiarity of the invention is that the cited mast (4) is connected to said hull (1) for oscillation about a substantially parallel axis to the hull longitudinal axis so that it can always arranged to extend as far as possible perpendicularly to the water surface even with the hull (1) at a heeling inclination about its longitudinal axis.



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"FIN KEEL SAILBOAT STRUCTURE"

This invention relates to a fin keel sailboat structure.

Fin keel sailboats are known to have a hull provided with a depending fin keel which extends downwards and includes, close to its bottom end ballast having the function of counterbalancing the pressure of wind, as will be explained hereinafter.

The hull supports a fixed mast which extends substantially perpendicularly to the plane defined by the hull, the mast carrying a sail.

When sailing in cross-wind conditions, the pressure of the wind on the sail causes an inclination of the hull about its longitudinal axis until the wind pressure on the sail is practically counterbalanced by the moment set up by the ballast provided in the fin keel.

In these conditions, i.e. with the mast at an inclination with respect to the wind direction, the surface of the sail, being inclined to the wind direction, brings about in practice a reduction in the useful surface area of the sail presented to the wind, and consequently in the amount of wind that may be utilized to propel the boat, while creating a downwardly directed vertical component of force which increases the boat's displacement.

It is the aim of this invention to obviate such prior disadvantages by providing a fin keel sailboat which allows the wind to be fully utilized irrespective

of the amount of heeling of the hull, which heeling inclination is necessary for maintaining its stability.

Within the above aim, it is a particular object of the invention to provide a fin keel sailboat structure wherein the useful surface area of the sail exposed to the wind is practically constant, and always as close as possible to the full surface area of the sail regardless of the inclination of the hull about its longitudinal axis

A further object of this invention is to provide a fin keel sailboat structure which, owing to its peculiar constructional features, can give full assurance of being reliable and safe to use, and above all, provide increased speed for a given surface area of sail.

A not least object of this invention is to provide a fin keel sailboat which may be obtained through comparatively simple modifications of a traditional sailboat, whil giving greatly improved results.

The above aim, and these and other objects such as will be apparent hereinafter, are achieved by a fin keel sailboat structure, according to the invention, comprising a hull having a fin keel and carrying a mast, having a mast head and a mast heel, characterized in that it further comprises means whereby said mast is connected to said hull for oscillatory movement allowing the mast to reach a substantially perpendicular position with respect to a water surface even with said hull inclined about its longitudinal axis.

Further features and advantages will be apparent from the following description of a preferred, but not

exclusive, embodiment of a fin keel boat structure, to be taken in conjunction with the accompanying illustrative, but not limitative, drawing, where:

Figure 1 is a schematical, partly cut-away end view of the sailboat;

Figure 2 shows the boat sailing in cross wind conditions, for example, the position of the mast in its traditional configuration being indicated in dash lines; and

Figure 3 is a detail view of the connection of the mast heel to the mast step.

With reference to the cited drawing figures, a fin keel sailboat structure according to the invention comprises a hull 1, which may be to any desired design and has a fin keel 2 depending therefrom, said keel being ballasted as schematically indicated at 3 and having any suitable configuration.

The hull 1 carries a mast 4 whereto a sail, schematically indicated at 5, is attached.

The peculiarity of the invention resides in the fact that the mast 4 is mounted for oscillation relatively to the hull 1, thereby it can be brought at all times as close as possible to a perpendicular position with respect to the water surface, and hence as far as possible across the wind direction irrespective of the hull inclination about its longitudinal axis.

To accommodate that inclination, in accordance with one exemplary embodiment which is not to be viewed as binding, however, the mast heel 6 is fashioned with a

cylindrical, or possibly spherical, surface portion, and fits in a socket 7 of complementary shape formed in the mast step 8.

Support is provided for the mast by shrouds 9 being connected to a region close to the mast head and having their lengths adjusted by taking them in and paying them out, for example, by means of winch elements 10 provided at the hull sides.

Thus, with the arrangement just described, the mast may be inclined, as shown in Figure 2, relatively to the hull so as to always hold it perpendicular to the wind direction, even with the hull heeling under a cross wind.

Thus, the useful sail area presented to the wind is practically increased on account of its being at all times perpendicular to the wind direction.

It should be added to the foregoing that the criterion of inclining the mast in fin keel sailboats is consonant to completely different functional conceptions from those encountered in other boats featuring a swinging mast, such as wind-surf boards, wherein the mast can be swung relatively to the board surface, since the board, by its own nature and differently from fin keel hulls, gets no stability from the righting couple resulting from the hull heeling, thereby it cannot be practically heeled with respect to the water surface. On the contrary, in normal sailing, the mast is to be inclined to windward, thus decreasing instead of increasing, with this expedient, the area exposed to the wind direction.

In practice, the application of an oscillable mast to a fin keel sailboat enables full utilization of a cross wind, increasing for a given sail area the amount of wind which may be used to propel the boat; as shown schematically in the drawing figures, the oscillation of the mast relatively to the hull may be accomplished by acting simultaneously on the shrouds 9 such as to tighten one shroud and pay out the other to obtain a desired inclination of the mast in either direction.

It may be appreciated from the above disclosure that the invention achieves its objects, and in particular the fact is emphasised that the adoption of an inherently simple expedient such as that of inclining the mast affords greatly improved results with fin keel boats, over fin keel boats of traditional design which have their masts mounted fixedly.

The invention described herein is susceptible to many modifications and variations without departing from the purview of the inventive concept.

Furthermore, all of the constructional details may be replaced with other, technically equivalent elements.

In practicing the invention, any materials, so long as compatible with the specific application, and any dimensions and contingent shapes may be used according to requirements.

CLAIMS

1. A fin keel sailboat structure comprising a hull (1) having a fin keel (2) and carrying a mast (4), having a mast head and a mast heel, characterized in that it further comprises means whereby said mast (4) is connected to said hull (1) for oscillatory movement allowing the mast (4) to reach a substantially perpendicular position with respect to a water surface even with said hull (1) inclined about its longitudinal axis.

2. A fin keel sailboat structure according to Claim 1, characterized in that said means of oscillating said mast (4) consist of shrouds (9) engaging with a region close to the mast head and being adjustable in length.

3. A fin keel sailboat structure according to the preceding claims, characterized in that said mast (4) has at the mast heel (6) at least one portion fashioned with a cylindrical surface having a parallel axis to said longitudinal axis of said hull (1), said portion fitting in a complementary socket (7) defined in a mast step (8).

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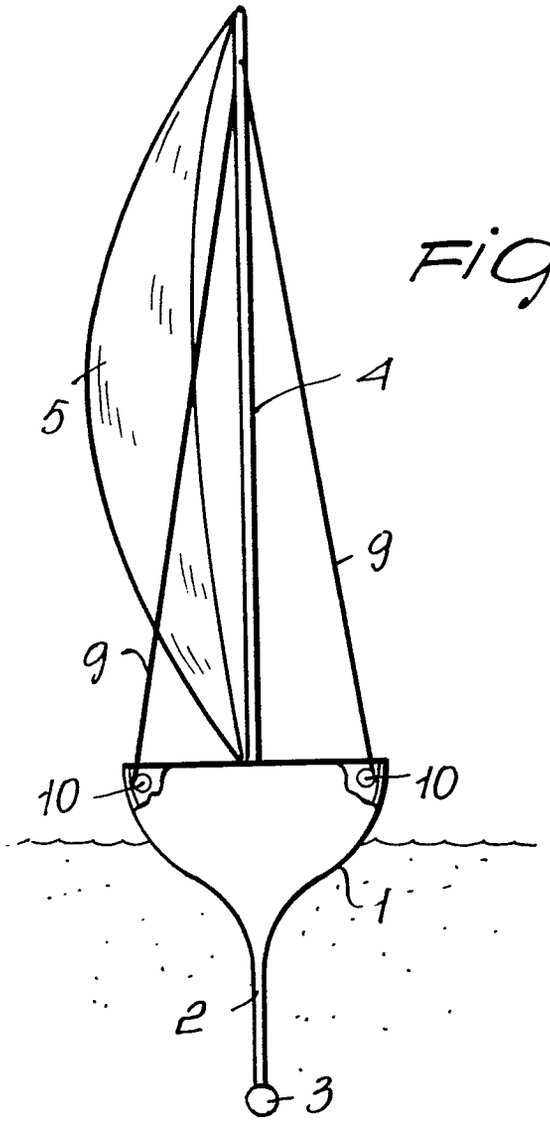
Fig. 1



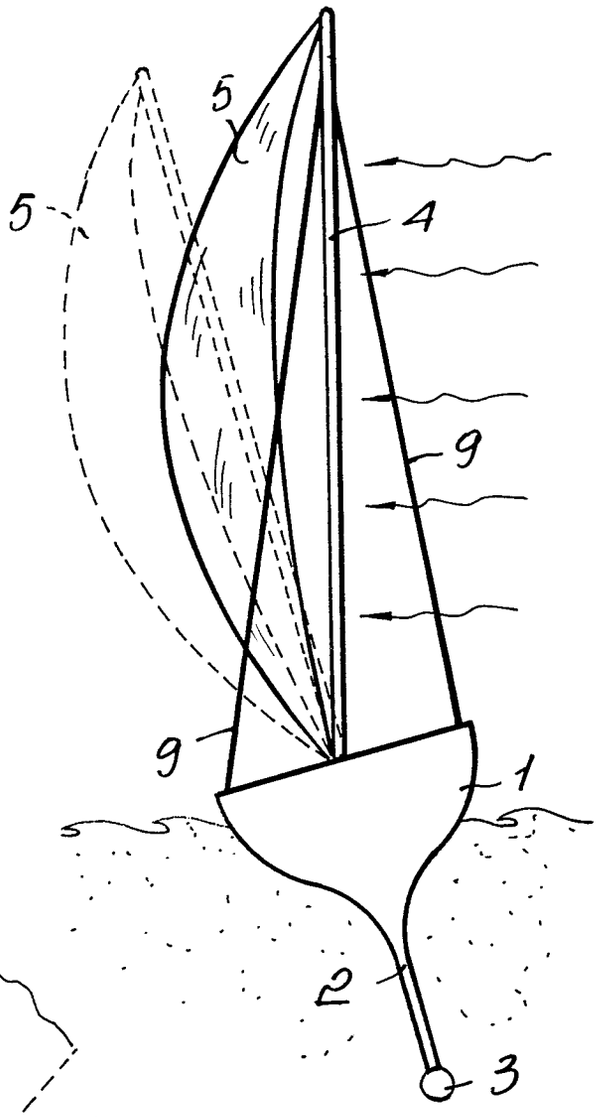


Fig. 2

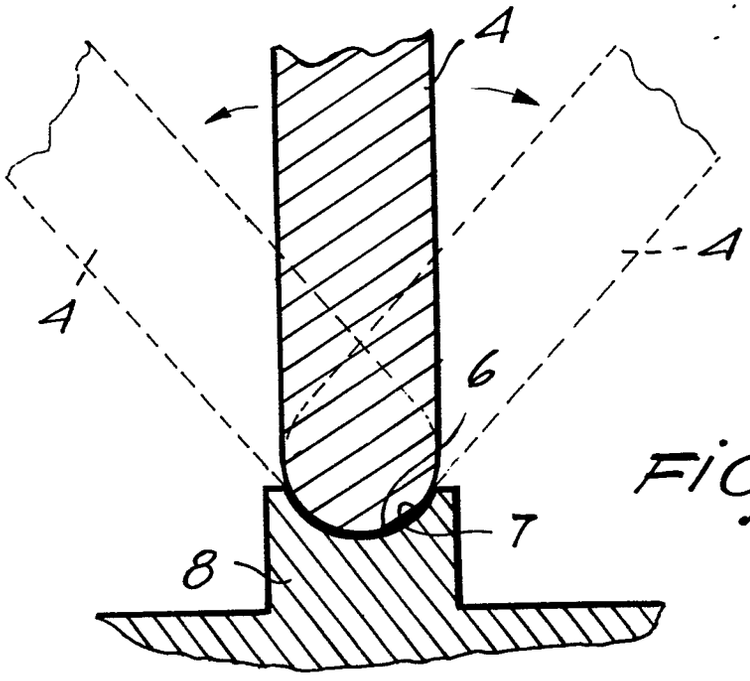


Fig. 3