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BOAT HULL

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2 Sheets-Sheet 1

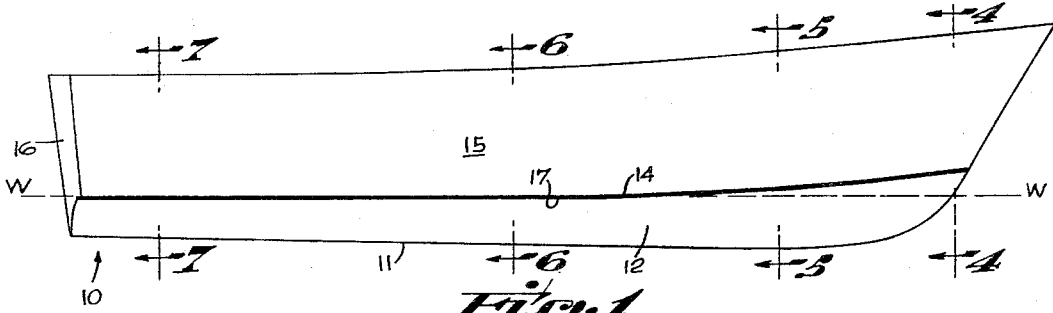


Fig. 1

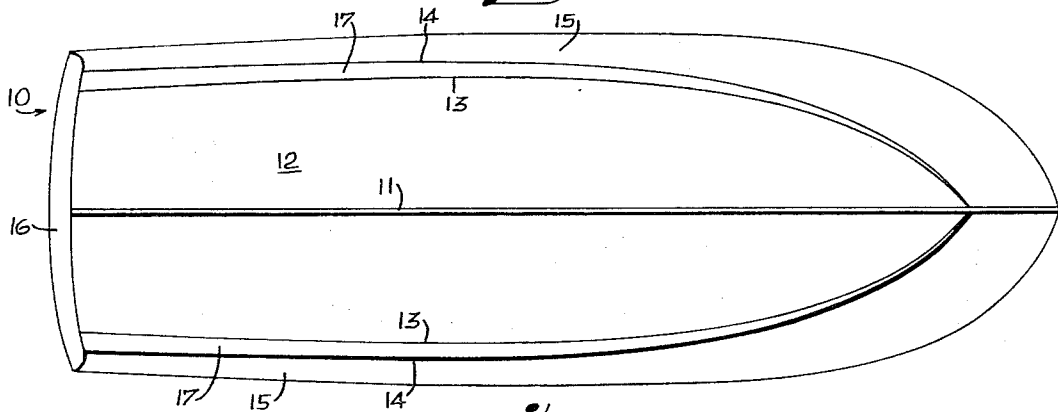


Fig. 2

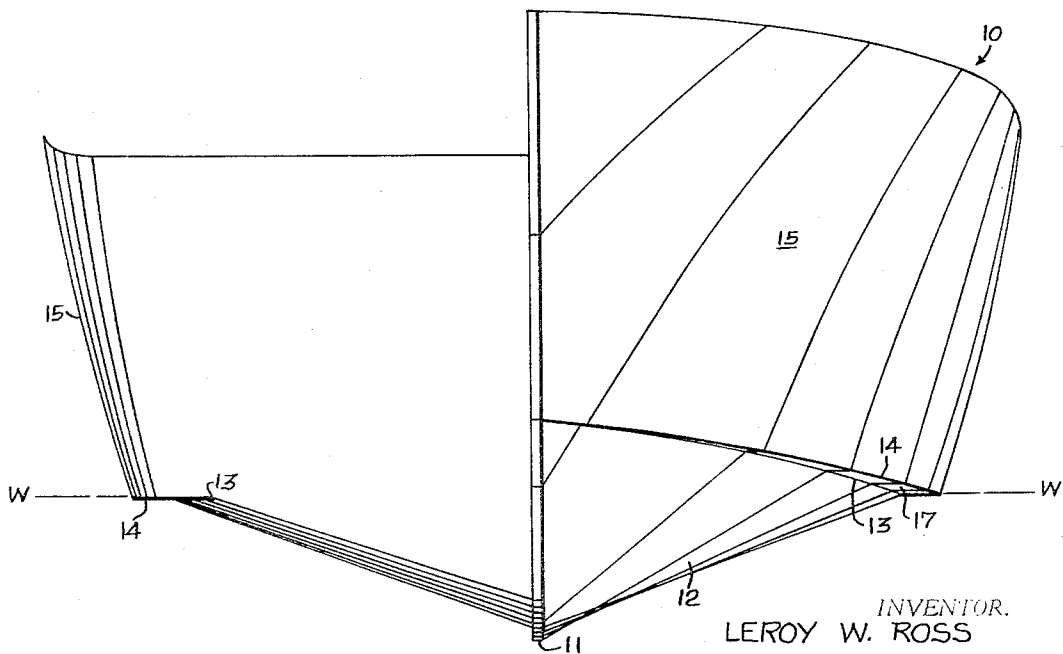


Fig. 3

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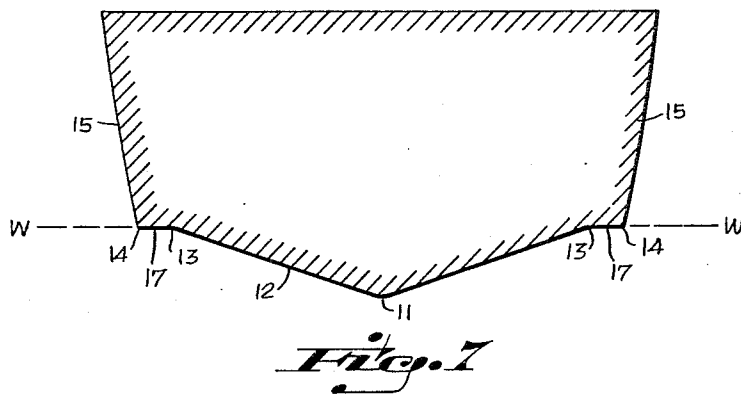
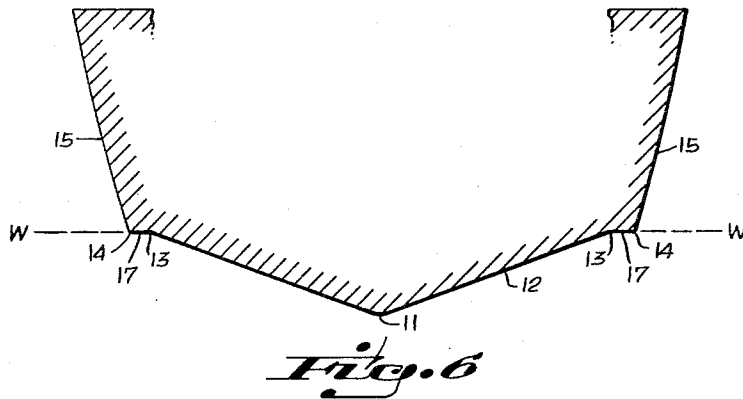
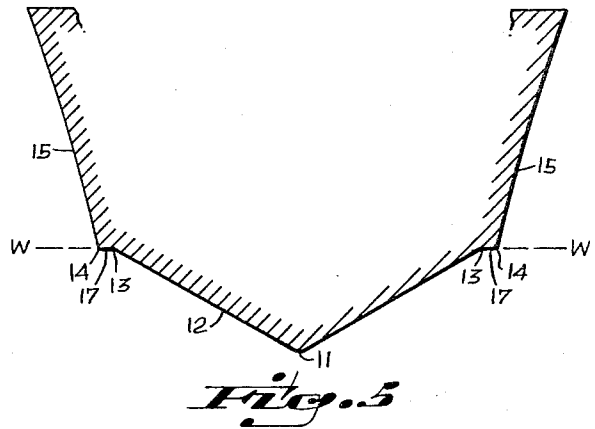
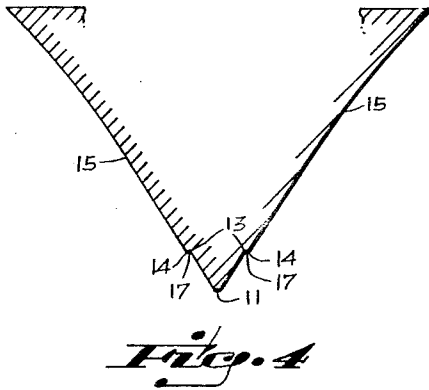
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BOAT HULL

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This invention relates generally to boat hulls, and is directed particularly to an improved boat hull for motor yachts and the like.

With the objective of reducing drag and thereby increasing speed, it is known to provide V-shaped or laterally-rounded boat hull bottoms with a plurality of longitudinal steps which, through planing action, serve to stepwisely raise portions of the hull bottom above the water line as speed is increased. While such hull construction may be suitable for certain classes of racing vessels, the comparatively poor lateral and longitudinal stability characteristics of such hulls render them generally unsatisfactory for general purpose motor vessels or yachts.

It is accordingly the principal object of this invention to provide an improved hull construction which, while having planing surfaces for decreasing drag and consequent greater efficiency at higher speeds, at the same time provides extraordinarily high stability, both lateral and longitudinal, at all speeds, and even under adverse sea conditions.

A more particular object is to provide a boat hull of the character described the underside of which, at that portion below the water line, is substantially V-shaped in transverse section and wherein, substantially along the water line, the hull extends at each side into opposed, substantially flat wing portions of gradually increasing width from the bow, where the wing portions converge, to the stern. By such construction the natural tendency of the hull to lift at the bow and sink at the stern while under way with power is strikingly inhibited by the abruptly increased displacement afforded by the outwardly projecting wing portions of the hull. Both lateral and longitudinal stability is further enhanced by the planing action of the water as it passes under the substantially horizontal wing portions of the hull exerting upward force components therealong.

Yet another object of the invention is to provide a hull which will be simple in construction, pleasing in appearance, and uniquely stable and seaworthy in performance.

Other objects, features and advantages of the invention will be apparent from the following description when read with reference to the accompanying drawings. In the drawings, wherein like reference numerals denote corresponding parts throughout the several views:

FIG. 1 is a side elevational view of a boat hull embodying the invention;

FIG. 2 is a bottom view thereof;

FIG. 3 is an elevational view showing the line plan of the hull at various positions therealong; and

FIGS. 4 through 7 are transverse cross-sectional views of the hull taken along the lines 4-4, 5-5, 6-6, and 7-7 of FIG. 1, respectively, in the direction of the arrows.

Referring now in detail to the drawings, 10 in FIGS. 1 and 2 designates, generally, a hull embodying the invention, the same comprising a keel 11, a bottom 12, a pair of chines 13, 14 at each side of said hull bottom, topsides 15, 15 and a transom 16 at the stern. The topsides 15, 15 are curved to converge at the bow in a conventional manner. The chine pairs 13, 14 at each side are laterally spaced to lie in a common plane, and define opposed, flat, marginal wing portions 17, 17 at each side of the hull between the bottom 12 and the topsides 15, 15 thereof. As best illustrated in FIG. 2, the hull wing portions 17, 17 extend from stem to stern, increasing

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gradually in width therealong. As illustrated in FIGS. 1, 3, 5, 6 and 7, the water line of the hull, indicated by the broken line W-W, lies in a plane substantially in common with the common plane of the marginal wing portions 17, 17, except for short portions thereof at the bow. As illustrated in FIGS. 3 through 7, the bottom of the hull is preferably of shallow V-shaped transverse section, decreasing in depth (or becoming increasingly shallow) from bow to stern. It has been determined that a constant V-angle of about 144 degrees beginning amidships (approximately the position indicated in FIG. 6) and extending to the stern of the hull, provides sufficient draft for stability and seaworthiness without introducing unnecessary drag. From amidships forward the V-angle necessarily increases gradually to a comparatively sharp angle at the bow.

In operation, the normal tendency of the hull to rise at the bow and settle at the stern when under way due to planing action is greatly inhibited by the displacement effected by the hull in the zones of the wing portions, principally those portions along the lengths of the double chines in the after part of the hull. Such buoying action has been found to reduce to about one-half the amount of rise at the bow of an ordinary hull when under way with power. Thus, while an ordinary hull can be expected to rise about 7½ degrees when under way, a hull embodying the invention under corresponding conditions has been found to rise only about 3¼ degrees. In addition to the buoying action of the hull wing portions 17, 17, upward thrust component forces thereat are also provided by the planing action of the water on the flat wing portions, to enhance overall buoyancy and consequent stability, both longitudinal and lateral. It will further be noted that, particularly in smaller hulls, any tendency of the hull to tip laterally as weight is shifted from one side to the other will be counteracted by the greatly increased buoyancy at the dipping side afforded by the displacement at the corresponding hull wing portion 17.

While there is illustrated and described herein only one form in which the invention may conveniently be embodied in practice, it is to be understood that this form is presented by way of example only, and not in a limiting sense. The invention, in brief, comprises all the embodiments and modifications coming within the scope and spirit of the following claims.

What I claim as new and desire to secure by Letters Patent is:

1. A boat hull having a bottom, a keel extending centrally along said bottom from stem to stern, a first pair of chines extending one each along each side of said bottom, a second pair of chines outwardly spaced one each from each one of said first pair of chines and defining therewith substantially flat hull wing portions at each side of said bottom and lying in a common, horizontal, transverse plane, a pair of hull sides extending upwardly from one each of said second pair of chines and from stem to stern and symmetrically disposed with respect to said keel, said bottom being substantially V-shaped in vertical transverse section with an obtuse V-angle of substantially constant value from a point amidships to the stern of the hull, said wing portions increasing gradually in width from stem to stern.

2. A boat hull having a bottom, a keel extending centrally along said bottom from stem to stern, a first pair of chines extending one each along each side of said bottom, a second pair of chines outwardly spaced one each from each one of said first pair of chines and defining therewith substantially flat hull wing portions at each side of said bottom and lying in a common, horizontal, transverse plane, a pair of hull sides extending upwardly from one each of said second pair of chines and from stem to stern and symmetrically disposed with

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respect to said keel, said bottom being substantially V-shaped in vertical transverse section with an obtuse V-angle of substantially constant value from a point amidships to the stern of the hull, the designed water line of the hull lying substantially in the common plane of said hull wing portions.

3. A boat hull having a bottom, a keel extending centrally along said bottom from stem to stern, a first pair of chines extending one each along each side of said bottom, a second pair of chines outwardly spaced one each from each one of said first pair of chines and defining therewith substantially flat hull wing portions at each side of said bottom and lying in a common, horizontal, transverse plane, a pair of hull sides extending upwardly from one each of said second pair of chines and from stem to stern and symmetrically disposed with respect to said keel, said bottom being substantially V-

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shaped in vertical transverse section with an obtuse V-angle of substantially constant value from a point amidships to the stern of the hull, said obtuse V-angle measuring approximately 144 degrees, said hull wing portions increasing gradually in width from stem to stern and said designated water line lying substantially in the common plane of said hull wing portions.

References Cited by the Examiner

UNITED STATES PATENTS

2,634,698	4/1953	Becker	114—56
2,887,978	5/1959	Tritt	114—56
3,117,544	1/1964	Schoell	114—56

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