Sept. 17, 1963 J. H. MARTIN, JR 3,103,673

WATER SKI ATTACHMENT

Filed Aug. 13, 1962

FIG. 1.

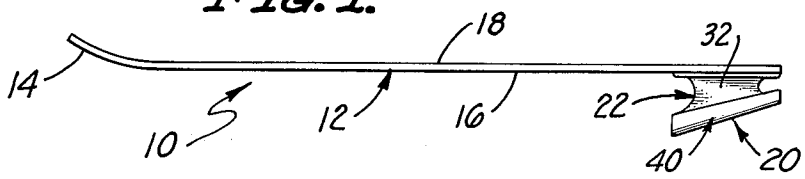


FIG. 2.

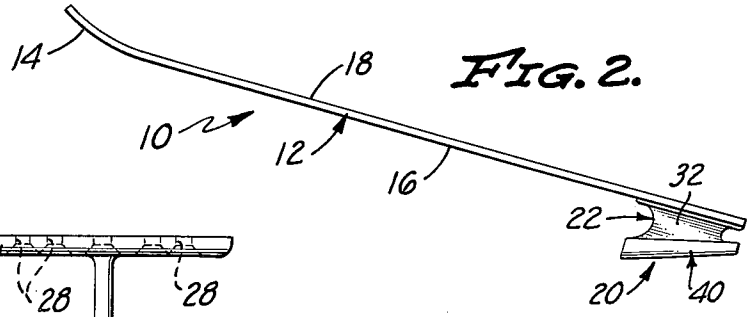


FIG. 3.

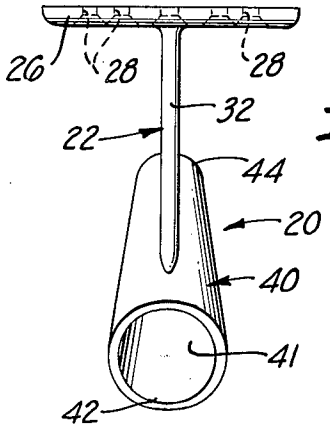
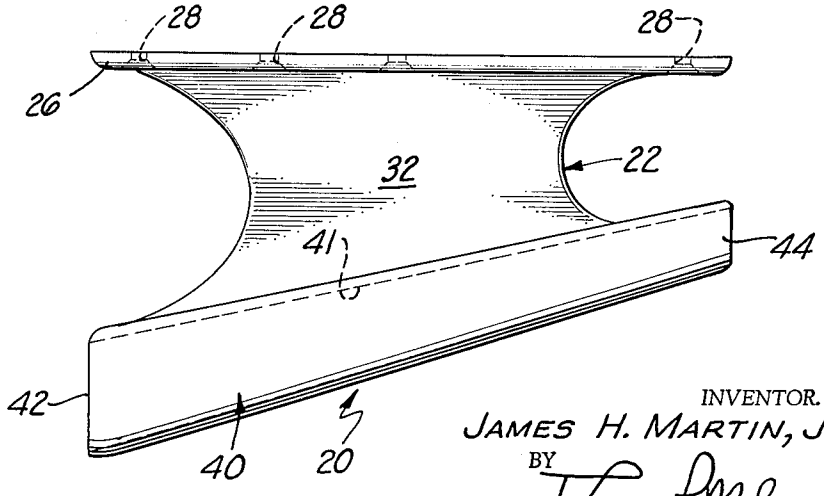


FIG. 4.



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WATER SKI ATTACHMENT

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10 Claims. (Cl. 9—310)

This invention relates to a water ski and, more particularly, to a water ski characterized by the incorporation of a skeg which is adapted to stabilize said water ski at high and which is also adapted to eliminate the characteristic planing effect which results when the water ski is disposed tangentially to the boat towing the same, that is, at an angle with respect to the longitudinal path of movement of said boat.

As is well known to those skilled in the art, conventional water skis usually incorporate at the rearward extremity of the substantially planar undersurface thereof a skeg which consists of a depending vane, the function of which is to longitudinally stabilize the water ski as it is drawn through the water by a towing vehicle. However, conventional water skis are characterized by the fact that, as the speed of the towing vehicle increases and as the tangent angle of the water ski to the towing vehicle correspondingly increases, the planar undersurface of the water ski tends to remain in substantial parallelism with the surface of the water. Therefore, there is a tendency for the ski to skew about on the surface of the water with resultant instability thereof.

It is, therefore, an object of my invention to provide a water ski which is characterized by the incorporation of a skeg at the rearward extremity thereof which incorporates hydrodynamic means adapted to materially stabilize the water ski during its longitudinal traverse through the water and, more particularly, to materially increase the tractive efficiency of the water ski during its movement through the water.

As is well known to water skiers, when the water skis diverge at an angle to the longitudinal movement of the towing vehicle, the tractive efficiency of the water skis is substantially reduced. This is attributable to the fact that the undersurfaces of the water skis tend to remain in a co-planar relationship with the surface of the water and to the fact that the effective moment arm of the water skis is substantially reduced by the angular disposition of their longitudinal axes with respect to the longitudinal movement of the towing vehicle.

Another object of my invention is the provision of a water ski construction which includes a skeg secured to the substantially planar undersurface of the water ski body, said skeg incorporating a mounting portion, an intermediate vane portion and a substantially tubular stabilizing portion disposed at the lower extremity of the vane portion.

An additional object of my invention is the provision of a water ski of the aforementioned character wherein the bore of the tubular stabilizing portion is characterized by the fact that the forward extremity thereof is substantially greater in diameter than the rearward extremity thereof, and the body of said tubular stabilizing portion tapers gradually from said forward extremity to said rearward extremity.

A further object of my invention is the provision of a water ski of the aforementioned character wherein the tubular stabilizing portion is disposed at an angle to the substantially planar undersurface of the water ski body and wherein the forward extremity of said tubular stabilizing portion is disposed downwardly with respect to the rearward extremity thereof.

Other objects and advantages of the invention will be apparent from the following specification and the accompanying drawing, which is for the purpose of illustration only, and in which:

FIG. 1 is a side elevational view of a water ski constructed in accordance with the teachings of the invention and disposed in a substantially horizontal plane characteristic of the orientation achieved thereby during relatively slow movement through the water;

FIG. 2 is a side elevational view illustrating the attitude assumed by the water ski of the invention when it is being drawn through the water at high speeds;

FIG. 3 is a front elevational view of the stabilizing skeg secured to the rear extremity of the undersurface of the water ski; and

FIG. 4 is a side elevational view of said skeg.

Referring to the drawings, and particularly to FIGS. 1 and 2 thereof, I show a water ski **10** constructed in accordance with the teachings of the invention and including an elongated water ski body **12**. The forward extremity **14** of the water ski body **12** is bent upwardly but the undersurface **16** thereof is planar in configuration. The planar undersurface **16** of the water ski body **12** is substantially parallel to the planar upper surface **18** of said water ski body.

Secured to the undersurface **16** of the water ski body **12** at the rearward extremity thereof is a stabilizing skeg **20** which may be fabricated in a variety of configurations and by the utilization of various materials and fabricating methods, but which, in the present embodiment of the invention, is diecast from aluminum in the form of a unitary body **22**.

The unitary body **22** of the skeg **20**, as best shown in FIGS. 3 and 4 of the drawing, includes a substantially planar rectangular mounting plate **26** which is adapted to be secured by appropriate fasteners, not shown, inserted through corresponding openings **28** in said mounting plate into the rearward extremity of the undersurface **16** of the ski body **12**.

Located below and formed integrally with the mounting plate **26** is an intermediate, stabilizing vane portion **32**. Formed integrally with and depending from the lower extremity of the vane portion **32** of the skeg **20** is an elongated tubular portion **40** which is adapted to serve as a hydrodynamic stabilizer for the water ski body **12**.

The elongated tubular body **40** has a bore **41** whose diameter at its forward extremity **42** is substantially greater than the rearward extremity **44** thereof and the tubular body **40** is gradually tapered from the relatively larger extremity **42** to the relatively smaller rearward extremity **44** of the tubular body **40**.

Therefore, it will be understood that the longitudinal axis of the tubular body **40** is disposed in alignment with the longitudinal axis of, but at an angle of approximately 15° with respect to the undersurface **16** of the ski body **12**. While I have specified a particular angle, there is, of course, a wide range of angles at which the tubular body **40** may be disposed. Thus, during the initial movement of the ski body **12** at a relatively slow speed, the hydrodynamic effect of the movement of fluid through the tubular body **40** is not particularly significant, as illustrated by FIG. 1 of the drawings. During relatively slow movement of the tubular body **40** of the skeg **20**, the associated water ski body **12** assumes the substantially co-planar relationship with the surface of the water which is illustrated in FIG. 1 of the drawings.

However, as the speed at which the water ski body **12** is towed increases, the increased flow of water through the tubular body **40** of the skeg **20** greatly increases to cause the hydrodynamic effect of the elongated tubular body **40** of the skeg **20** to draw the rearward extremity of the tubular body **40** of the skeg **20** downwardly to cause the ski body **12** to assume the angular position shown in FIG. 2 of the drawing wherein the rearward

extremity of the ski body **12** is substantially immersed in water.

Therefore, it can be readily understood that the longitudinal stability of the ski body **12** with reference to the water traversed by the same is materially enhanced since a substantially greater area of the ski body **12** is subjected to the hydrodynamic effect of the water being traversed. Moreover, a substantial quantity or mass of water passes through the elongated tubular portion **40** of the skeg **20** acting in a lienar fashion to materially stabilize the skeg **20** and, thus, the ski body **12**.

Moreover, as the angle of the ski body **12** diverges from the longitudinal axis of traverse of the towing vehicle through the water it will be apparent that the hydrodynamic action of the skeg **20** in causing the rearward extremity of the water ski body **12** to be urged downwardly below the surface of the water materially enhances the tractive grip of the water ski body **12** upon the water. Thus, instead of the water ski body **12** slipping or skewing on the surface of the water as the angularity of the longitudinal axis of the water ski body **12** with respect to the longitudinal axis of movement of the towing vehicle increases, the skeg **20** of the invention and, more particularly, the elongated tubular stabilizing body **40** thereof, materially enhances the bite of the water ski body **12** upon the water and materially enhances the dynamic stability of the water ski body **12**.

I thus provide by my invention a water ski which incorporates a hydrodynamic skeg adapted to materially stabilize the movement of the water ski body through the water. Furthermore, I provide a skeg which is adapted to be secured to any water ski body and which includes a mounting plate for securement to the water ski body, an intermediate stabilizing vane portion and a hydrodynamic tubular body adapted to utilize the flow of the water through which the water ski is traversed to materially stabilize the movement and actuation thereof.

I claim:

1. In a water ski, the combination of: a water ski body having a substantially planar undersurface; and a skeg secured to the rear extremity of said body, said skeg having a mounting portion at the upper extremity thereof and an intermediate vane portion secured thereto, said vane portion having a tubular stabilizing device mounted on the lower extremity thereof with its longitudinal axis disposed in alignment with the longitudinal axis of said water ski body.

2. In a water ski, the combination of: a water ski body having a substantially planar undersurface; and a skeg secured to the rear extremity of said body, said skeg having a mounting portion at the upper extremity thereof and an intermediate vane portion secured thereto, said vane portion having a tubular stabilizing device mounted on the lower extremity thereof with its longitudinal axis disposed in alignment with the longitudinal axis of said water ski body, said tubular stabilizing device having an enlarged forward extremity and a reduced rearward extremity.

3. In a water ski, the combination of: a water ski body having a substantially planar undersurface; and a skeg secured to the rear extremity of said body, said skeg having a mounting portion at the upper extremity thereof and an intermediate vane portion secured thereto, said vane portion having a tubular stabilizing device mounted on the lower extremity thereof with its longitudinal axis disposed in alignment with the longitudinal axis of said water ski body, said tubular device being inclined downwardly at an angle divergent from the planar undersurface of said water ski body.

4. In a water ski, the combination of: an elongated water ski body having a substantially planar undersurface; and a stabilizing skeg secured to the rearward extremity of said undersurface, said skeg including a mounting portion secured to said undersurface, an intermediate vane portion, and an elongated tubular portion formed integrally with said vane portion and having an enlarged forward extremity tapering to a reduced rearward extremity, said tubular portion being disposed at an angle with respect to said undersurface of said ski body.

5. In a water ski construction, the combination of: an elongated ski body having a substantially planar undersurface; and a stabilizing skeg secured to the rearward extremity of said undersurface including a mounting portion, an intermediate vane portion disposed below said mounting portion and an elongated tubular portion having its longitudinal axis disposed in alignment with said body, but diverging at an angle from said undersurface.

6. In a water ski construction, the combination of: an elongated ski body having a substantially planar undersurface; and a stabilizing skeg secured to the rearward extremity of said undersurface including a mounting portion, an intermediate portion disposed below said mounting portion and an elongated tubular portion having its longitudinal axis disposed in alignment with said body, but diverging at an angle from said undersurface, said tubular portion having an enlarged forward extremity and a reduced rearward extremity.

7. In a water ski construction, the combination of: an elongated ski body having a substantially planar undersurface; and a stabilizing skeg secured to the rearward extremity of said undersurface including a mounting portion, an intermediate portion disposed below said mounting portion and an elongated tubular portion having its longitudinal axis disposed in alignment with said body, but diverging at an angle from said undersurface, said tubular portion having an enlarged forward extremity and a reduced rearward extremity, said tubular portion being disposed at an angle which locates the enlarged forward extremity downwardly with respect to the rearward extremity thereof.

8. A skeg for a water ski having a planar undersurface including, a mounting portion at the upper extremity thereof and an intermediate vane portion secured thereto, said vane portion having a tubular stabilizing device mounted on the lower extremity thereof with its longitudinal axis disposed in alignment with the longitudinal axis of said water ski body, said tubular device being inclined downwardly at an angle divergent from the planar undersurface of said water ski body.

9. A skeg for a water ski having a planar undersurface including, a mounting portion at the upper extremity thereof and an intermediate vane portion secured thereto, said vane portion having a tubular stabilizing device mounted on the lower extremity thereof with its longitudinal axis disposed in alignment with the longitudinal axis of said water ski, said tubular stabilizing device being inclined downwardly at an angle divergent from the planar undersurface of said water ski and having an enlarged forward extremity and a reduced rearward extremity.

10. A skeg for a water ski having a planar undersurface, including, a mounting portion at the upper extremity thereof and an intermediate vane portion secured thereto, said vane portion having a tubular stabilizing device mounted on the lower extremity thereof with its longitudinal axis disposed in alignment with the longitudinal axis of said water ski body, said tubular stabilizing device having an enlarged forward extremity and a reduced rearward extremity.

No references cited.