Jnue 1, 1971 E. O. SMITH 3,581,328

WATER SPORTS VEHICLE

Filed May 13, 1969 3 Sheets-Sheet 1

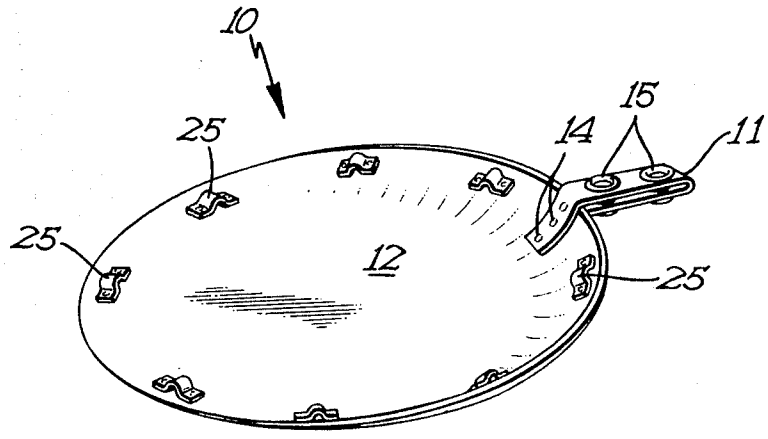


FIG 1

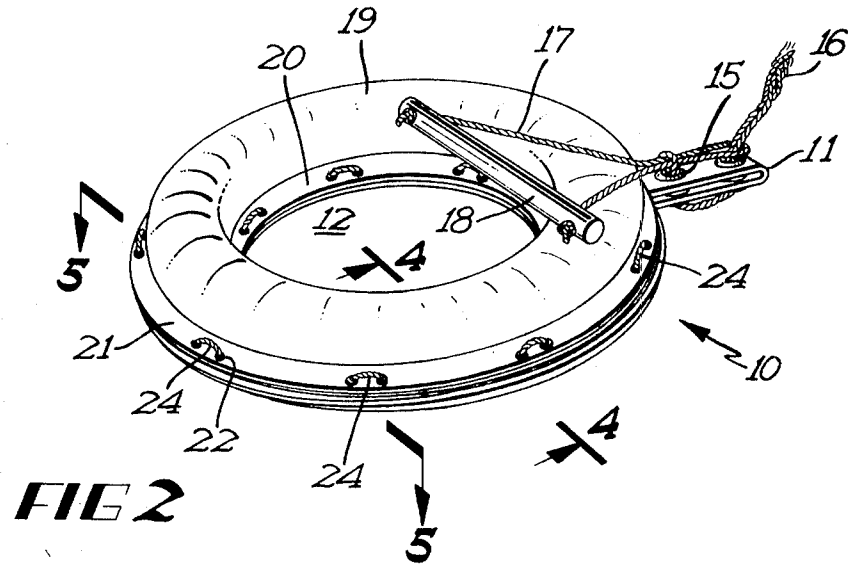


FIG 2

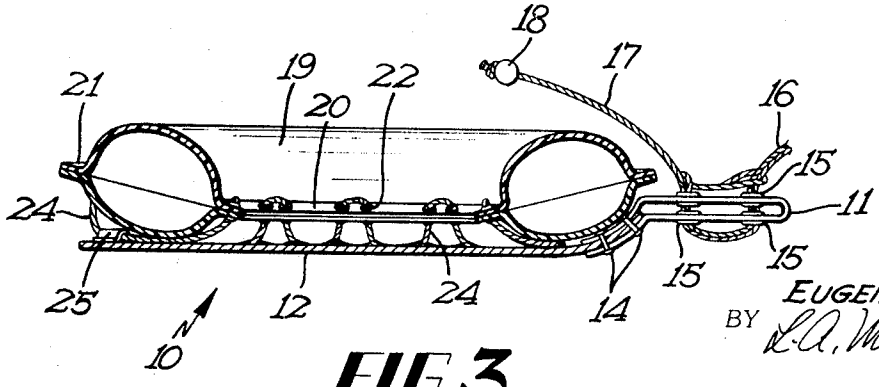


FIG 3

INVENTOR.
EUGENE O. SMITH
BY L. A. MacEachron
ATTORNEY

Jnue 1, 1971 E. O. SMITH 3,581,328

WATER SPORTS VEHICLE

Filed May 13, 1969 3 Sheets-Sheet 2

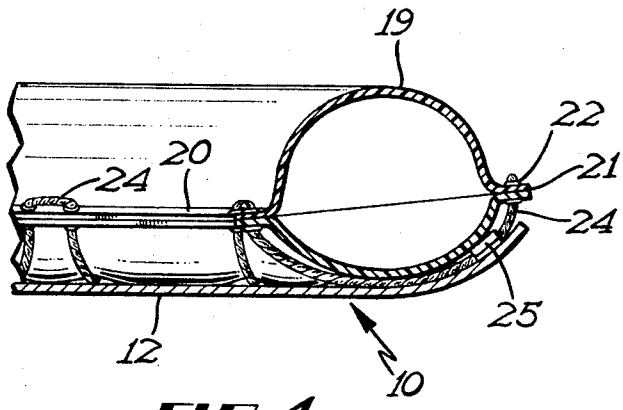


FIG 4

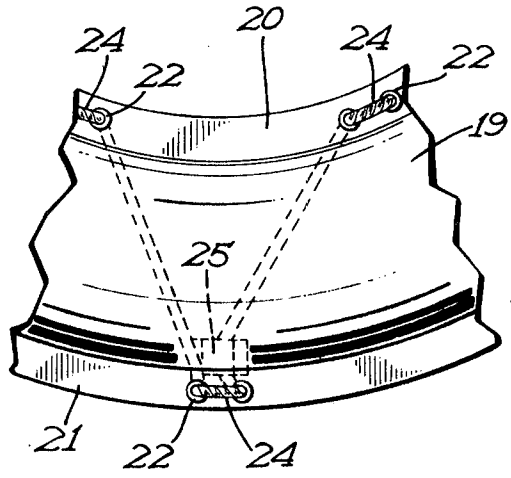


FIG 5

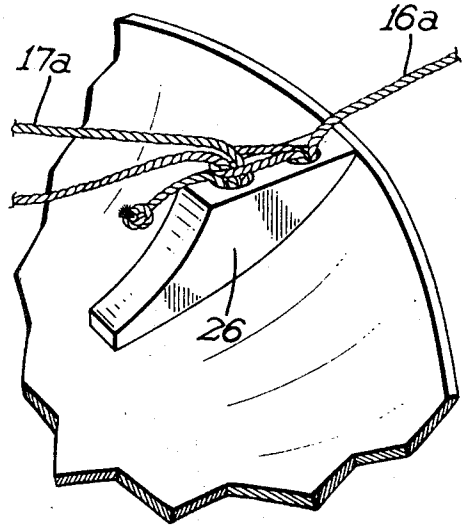


FIG 6

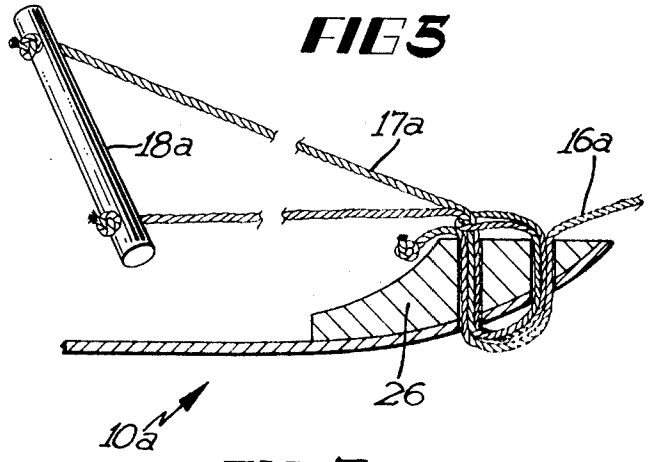


FIG 7

INVENTOR.
EUGENE O. SMITH
BY L. G. MacEachron
ATTORNEY

Jnue 1, 1971 E. O. SMITH 3,581,328

WATER SPORTS VEHICLE

Filed May 13, 1969 3 Sheets-Sheet 3

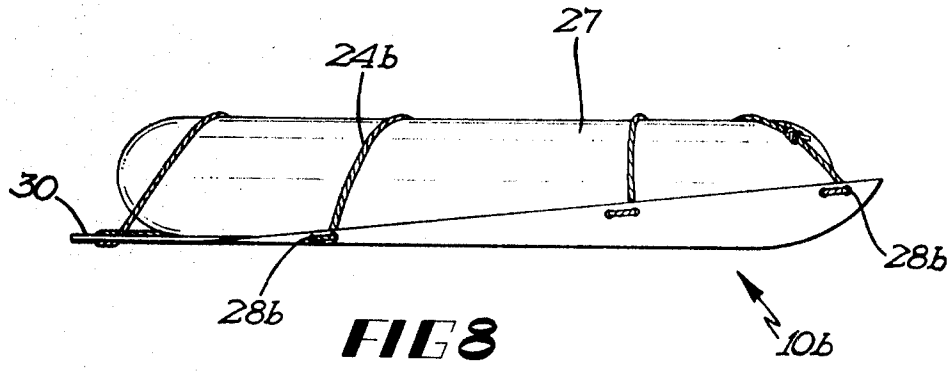


FIG 8

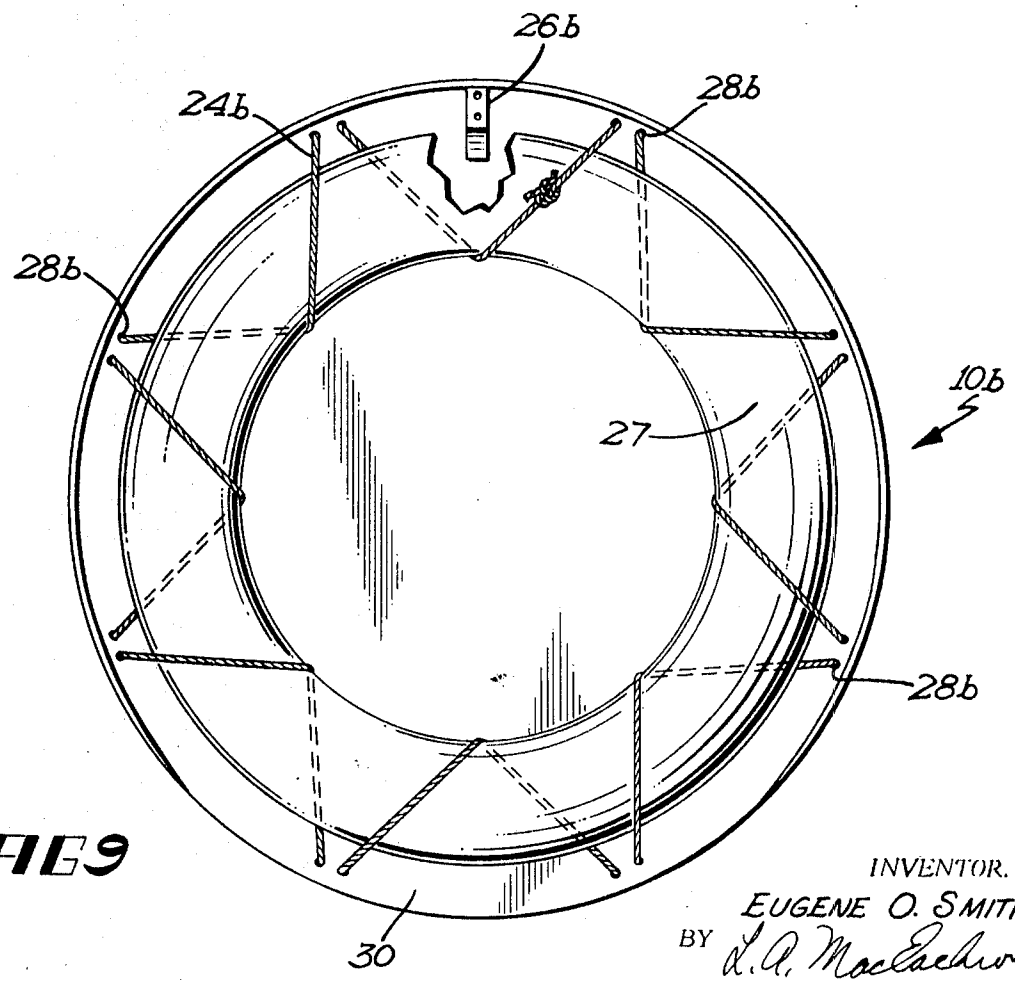


FIG 9

INVENTOR.
EUGENE O. SMITH
BY L. A. MacEachron
ATTORNEY

United States Patent Office 3,581,328
Patented June 1, 1971

3,581,328

WATER SPORTS VEHICLE

Eugene O. Smith, Victoria Heights,
Alexandria, Minn. 56308

Filed May 13, 1969, Ser. No. 824,137
Int. Cl. A63c 15/00
U.S. Cl. 9—310G 9 Claims

ABSTRACT OF THE DISCLOSURE

A water sports vehicle comprising a distorted disc that is curved up at the front, to a lesser degree at the sides and not at all at the rear combined with a resilient flotation seat.

BACKGROUND OF THE INVENTION

Prior to my invention, many towed type water sports vehicles have been devised. Most of these prior devices include some element of control by the rider. None of the previous devices that I am aware of, in fact, have left the rider without control of the direction taken by the device. Neither have any of the prior devices offered a resilient support for the rider and particularly not where the support is also buoyant. In the case of water skis, for example, a rudder like fin is provided at the rear of each ski. This gives the rider remarkable control over the direction that the rider will approach the wake of the boat towing him. The rider may elect to cross the wake or follow it. Even the old, square cornered, towed aqua plane could be controlled rather well by the distribution of the rider's weight on the board.

More recently there have been self powered types of units that would fall into this class of water sports vehicles. They obviously must be controlled and are. These self powered units are obviously not to be compared to the towed form of vehicle which is under discussion here.

SUMMARY OF THE INVENTION

This invention is a water craft of the type generally regarded as sporting, as distinct from transporting or working craft. Specifically it is such a craft of the type that derives its primary ability to support weight from planing over water as it is being towed. It has a distorted disc body portion that is curved up most in front, less at the sides and not at all at the rear. A resilient, buoyant cushion is secured to the top of the body portion and serves as both a shock absorbing seat for the rider and as a means to prevent the device from sinking when it is not planing as when the rider falls off and the towing boat stops to allow the rider to get back on the device. The cushion float is laced to the balance of the device which makes it readily replaceable when worn. It also minimizes the chance for the rider to be injured by hard securing devices. As the cushion float is the most vulnerable portion of the device, easy replacement of it is a highly desirable feature.

A hand hold is also provided for the rider. The same structure that provides a hand hold is also used to secure a towing rope to the body member. The cushion float is also desirably made large enough to pad most of the unyielding edges of the body portion to protect riders or other persons from serious injury from an accidental blow. These and other features will become apparent from a detailed description of the device in connection with the accompanying drawings that are briefly described below.

DRAWINGS

FIG. 1 is a perspective view of the body portion;

FIG. 2 is a similar view of the entire device except for the towing rope which is shown only in fragment;

FIG. 3 is a longitudinal section of the device in FIG. 2 taken on the line and in the direction of the arrows 3—3 in that figure;

FIG. 4 is a fragmentary, enlarged section taken on the line and in the direction of the arrows 4—4 in FIG. 2;

FIG. 5 is a fragmentary plan view drawn to the same scale as FIG. 4 and taken on the line and in the direction of the arrows 5—5 in FIG. 2;

FIG. 6 is an enlarged fragmentary view of an alternative method of securing the ropes for both towing and the hand hold to the body portion;

FIG. 7 is a longitudinal sectional view of the structure in FIG. 6 to illustrate how the rope is strung through the rope receiving fixtures on the body;

FIG. 8 is a side elevation view of a modified form of the device and drawn to a scale that is about half way between that used in FIGS. 1, 2 and 3 and that used in FIGS. 4 through 7; and

FIG. 9 is a plan view of the modified form of the device shown in FIG. 8.

DETAILED DESCRIPTION OF THE INVENTION

The invention as shown in FIGS. 1 through 5 is first described. Body portion **10** is seen in FIGS. 1 and 3 to curve up in front where the towing fixture **11** is secured and to be not curved up at all at the point diametrically opposed. The flat portion embraces approximately the rear quadrant but may embrace even more say 100° or even 110° of the rear of the distorted disc body portion. It is not detrimental to have slightly less than 90°, but even 5° and certainly 10° less than a full quadrant will begin to destroy the ability of the vehicle to slide sideways over the water. Instead of the desirable and thrilling sideways slide, too little of the rear not being curved results in the device "mushing" down into the water and following the wake of the towing boat.

Between the flat rear and the pronouncedly upwardly curving front, the sides gradually change from nearly flat near the rear to markedly upward curve near the front.

A curve for the front that has been found to be very desirable in practice in the sense of producing a wild and thrilling ride is one that starts about six to ten inches back from the leading edge of the disc before being distorted and from that point curves up on an ever decreasing radius until the last two inches or so at the very front are substantially perpendicular with reference to the bottom of the body. The body may be made from any material that lends itself to the formation of the distorted disc shape. Plywood, fiberglass, and metals including stainless steel and aluminum or magnesium alloys seem to be the most practical to me at the present.

When the device is formed from metal, a towing fixture is most easily secured in the form shown at **11** in FIGS. 1–3. The structure shown is a doubled-back strap of metal secured to the front of body **10** in any suitable way as by the rivets **14**. Holes formed in the extending portion of the strap may have their edges made smooth most easily by inserting grommet **15**. Through these grommets a loop from the tow rope **16** may be inserted, as shown in FIGS. 2 and 3. The rope **17** for the hand bar **18** embraces the tow rope **16** to anchor the hand hold rope and then is extended through the looped end of the tow rope **16** to serve as a means for preventing the tow rope from being pulled through the grommet **15**. The two ropes serve as securing means for each other. The ends of the hand rope **17** extend through holes in bar **18** and are knotted to prevent them from being pulled back through the bar **18** in the direction from which they were inserted.

A very important part of the total concept of this invention resides in the use of a resilient combination

cushion and flotation member **19** which I prefer to provide in the form of an inflated tube. This tube may be a plain doughnut shape. There are certain advantages to be derived from providing flanges such as the inner flange **20** and the outer flange **21** in FIGS. 2–5. A structure like this may be achieved by forming the tube of a heat sealable plastic when the seals are placed inside the edges of the pieces as to leave the flange. These two flanges are provided with grommets as at **22** through which the lacing **24** is passed to secure the tube to the eye member **25** that are suitably secured to the body portion **10**. Any of many suitable commercial valves (not shown) may be used to admit inflating gas into the tube and keep it there until it is desired to deflate the tube for storage or the like. FIGS. 4 and 5 show details of this lacing means for securing the tube **19** to the body **10**.

A variation in the means for attaching the tow rope and hand hold rope to the body portion is disclosed in FIGS. 6 and 7. In those figures, the body **10***a* has a block member **26** secured to the inside front center. If the body is made of a suitable material such a fiber glass, this block **26** may be molded integrally with the body member **10***a*. The block is provided with two holes that serve to receive a loop from the hand hold rope **17***a* through the end of which the two free ends of the rope are passed. This secures the rope **17***a* to the block **26**. The free ends are then passed through holes in the hand bar **18***a* and secured by knotting as before. Tow rope **16***a* is merely threaded through the block, down at the front and up at the rear, after which it is knotted to prevent it from being pulled back through the block **26**. This form of the attaching has the advantage that it does not extend beyond the resilient cushion which protects riders from being accidentally struck by it. This form of the attaching means has the drawback, however, of being rather expensive unless very large volume of manufacture is achieved. While this form of construction seems to lend itself particularly well to fiber glass construction, it could also be made very well by combing aluminum castings and stampings using modern welding methods.

In FIGS. 8 and 9 is shown another variation of the device which retains the distorted disc body portion, here marked **10***b*, but employs a plain, i.e. not flanged, inflatable tube **27** for its resilient cushion and float. Lacing **24***b* merely wraps around the tube **27** and extends through eyes or holes **28** in the edge of the body **10***b*. Furthermore, the tube **27** is somewhat smaller than the tube **19** which leaves an exposed edge portion **30** at the back of the disc on which a skilled rider may attempt to stand. In the event that such a style of riding is attempted, the hand hold rope would have to be extended substantially, of course. The tow and hand rope securing means in FIGS. 8 and 9 is a block **26***b* like the block **26** in FIGS. 6 and 7. Also it is pointed out that the towing fixture **11** in the form of the device illustrated in FIGS. 1 through 3 may be used with the same rope securing pattern as is shown in FIGS. 6 and 7 and vice-versa.

OPERATION

To ready the device for operation, the tube is loosely laced to the body and lightly inflated. The lacing is then made rather snug without distorting the tube shape. After the lacing is snug and secure the tube is then fully inflated which causes it to become so smoothly embraced by the lashings that there is practically no way a foot or hand can become entangled with consequent danger of injury to the rider should he fall from the device while it is being towed. When the device is ready for the rider, it is secured to the towing boat by the tow line **16** that is presently believed to be best if about fifty feet long. A line even a few feet shorter than this tends to inhibit the motion of the device too much. Such inhibition reduces the thrills that can be achieved. If it is much longer, there is some danger of loosing control altogether with possible danger to the rider. A novice or young rider sits on the inflated tube at the back and holds on to the bar **18**. The device is then towed at say fifteen to twenty miles per hour behind a boat of adequate power to do this. When the boat turns, the body portion **10** slides sideways over the wake of the boat with a consequent up and down ride that is very exciting. This type of ride can only be achieved with a body portion the back of which does not curve up at all. A device that was made with curve up all around the edge of the body portion was found to simply wallow and not slide out to the side of the boat in the desirable manner described above. When the boat that is towing the device of this invention is turned first one way and then the other, the invention may for brief intervals extend sideways from the boat at nearly right angles to the direction of travel of the boat.

In the event of a spill, the device can be released from the boat which causes it to quickly loose all forward momentum and stay near the rider who has been lost. In this manner, the inflated cushion and float is left near the rider to supplement whatever flotation equipment the rider may be wearing. It will also serve as a visible object near the dumped rider for the boat operator to spot in trying to get quickly back to the person in the water. All in all the device is very safe while also being quite exciting for children too young or any person too inept to water ski for example. It is also possible for the device to be operated in a manner that the most hardened water sports fan will find exciting—as by having him stand on the back of the device in the manner described in connection with FIGS. 8 and 9.

My device is susceptible of considerable variation from the precise forms shown here and still be within the scope of my concepts as defined in the following claims.

I claim:

1. A water sports vehicle comprising:

(A) A disc curved upwardly in front to a pronounced degree, at the sides to a lesser degree than in front and at the rear quadrant substantially none;

(B) Means for securing a tow rope to the front center of said disc; and

(C) A rider hand support secured to the front of said disc.

2. The water sports vehicle of claim **1** in which there is a resilient cushion means secured to the top of said disc.

3. The water sports vehicle of claim **2** in which said resilient cushion means is an inflated doughnut shaped tube.

4. The water sports vehicle of claim **3** in which said inflated doughnut shaped tube is laced to the disc.

5. The water sports vehicle of claim **1** in which there is a resilient cushion and float means laced to the top of the disc.

6. The water sports vehicle of claim **5** in which the resilient cushion means is an inflated doughnut shaped tube having flanges and the lacing extends through holes in the flanges and eyes on the body portion.

7. A water sports vehicle having:

(A) a body portion comprising a distorted plane geometrical shape; the distortion being in the form of a substantial upward curve at the front of the body portion, to a lesser extent at the sides and not at all at the rear; said rear portion comprising at least 22% of the periphery of said body and the underside of said body having no fins, rudders or similar members protruding from it;

(B) means for securing a towing rope to said body;

(C) means to allow a rider to help stabilize himself on said body secured to said body.

8. The water sports vehicle of claim **7** in which said means to stabilize a rider comprises a rope also;

(A) A fixture secured to said body near the front thereof; said towing rope and said rider stabilizing rope serving to secure each other to said fixture.

9. The water sports vehicle of claim 7 in which said body is curved at the front and rear when viewed in plan.

References Cited

UNITED STATES PATENTS

2,685,696	8/1954	Oscanyan	9—310
3,145,400	8/1964	Yoakum	9—310
3,239,858	3/1966	Beck	9—310
3,294,410	12/1966	Tomasino, Jr.	280—12
3,352,567	11/1967	Swanson	280—12
3,380,090	4/1968	Kenmuir	9—6
3,434,167	3/1969	Del Vecchio et al.	9—310

FOREIGN PATENTS

142,950	11/1949	Australia	9—310
393,959	6/1965	Switzerland	9—310

MILTON BUCHLER, Primary Examiner

P. E. SAUBERER, Assistant Examiner

U.S. Cl. X.R.

280—12B