

[54] POWER BOAT RACING HELMET
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[58] Field of Search 2/3, 5, 6, 68;
9/346

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[57] ABSTRACT

A helmet designed specifically for power boat racing wherein the helmet is constructed of a lightweight glass fibrous material with an interior foam cushioning material, a rubber flexible lip completely surrounds the helmet opening, the lip to tightly engage the head and neck of the wearer.

1 Claim, 3 Drawing Figures

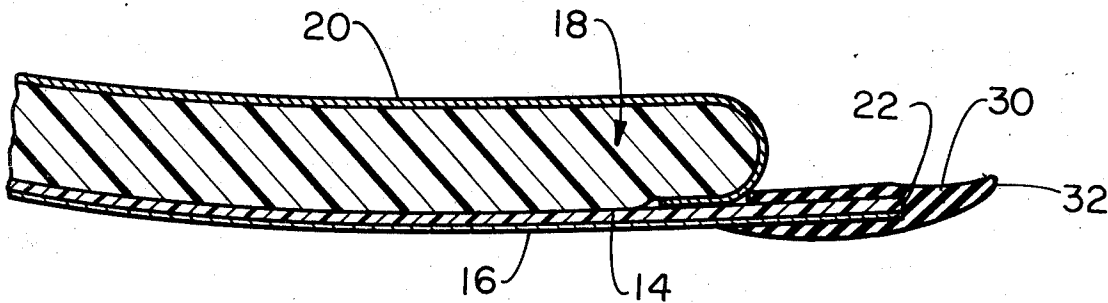


Fig. 1.

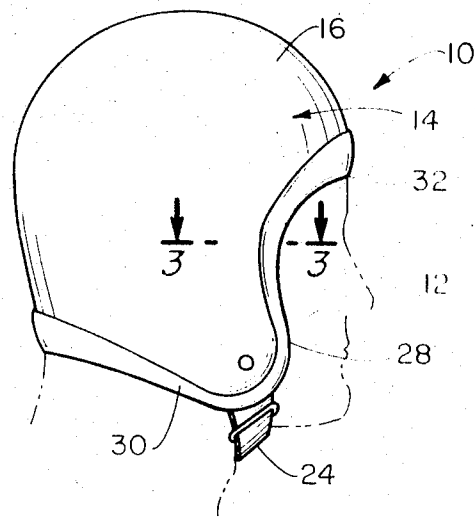


Fig. 2.

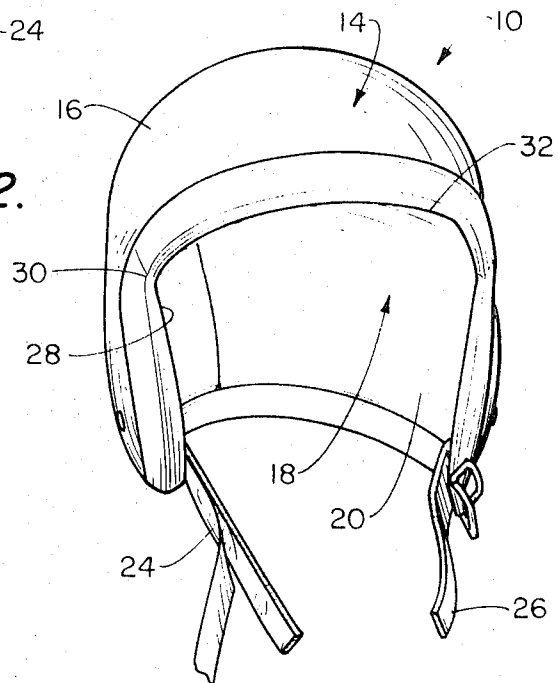
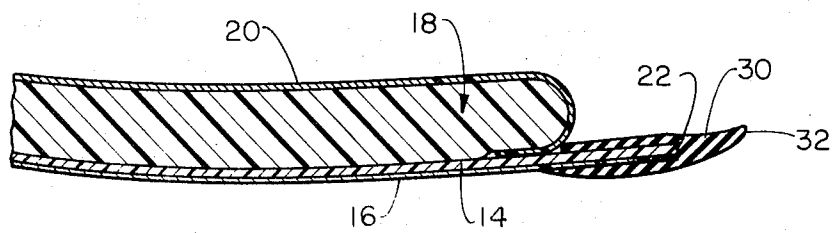


Fig. 3.



POWER BOAT RACING HELMET

BACKGROUND OF THE INVENTION

The field of this invention relates to protective helmets for human beings during vehicle accidents and more particularly to a protective helmet for motor boat racing.

Most protective helmets are designed to be employed in conjunction with land vehicles. When in use with a land vehicle it is contemplated that the head of the wearer may strike at a high velocity a fixed immovable object. The normally contemplated environment for such helmets is in automobile racing, motorcycle racing and normal motorcycle use, construction work, or contact sports such as football and polo.

In the environments previously enumerated, it is desirable to design the helmet to be of sufficient thickness to absorb an impact force and also for the helmet shell itself to be spaced from the head of the wearer.

In the environment of power boat racing the protective helmet encounters an environment substantially different from the previously described environment. In nearly all boat accidents the driver is thrown from the boat into the water. The driver may collide with his own boat during being thrown from the boat, which means that the driver is traveling at approximately the same speed as the boat. Consequently, if the helmeted driver's head strikes the boat, the impact is minute compared to the impact sustained when a land vehicle driver hits a stationary object, since both are moving at approximately the same speed.

Further, the problem of "bucketing" is incurred when a driver is thrown from his boat into the water at high speed. "Bucketing" occurs when the driver enters the water and has upon his head a conventional helmet which is spaced from his head a predetermined distance. As a result, water is caused to enter within the helmet about the driver's head which then exerts pressure against the interior of the helmet. This pressure has been found to be rather substantial with a rough estimate being that one square inch of helmet area at 100 miles per hour equals 100 pounds of pressure. It is to be understood that "bucketing" occurs only when the driver enters the water feet first. It is also contemplated that anything in excess of a 300 pound snapping force on the neck results in a broken neck of the driver and death. Therefore, only three square inches is needed interiorly of the helmet to result in death of the driver if he contacts the water feet first at 100 miles per hour. The interior area of the normal helmet includes far more than three square inches of area.

SUMMARY OF THE INVENTION

The helmet of this invention is designed for an extremely close fit to the skull of the wearer (approximately one-fourth of an inch) in contrast to the spaced fit for most helmets ($\frac{3}{4}$ of an inch to $1\frac{1}{2}$ inches). The helmet of this invention is to be constructed of a thin lightweight outer shell of a glass fibrous material. Connected within the outer shell is a foam cushioning material which is to cushion the skull of the wearer. A rubber flexible lip completely surrounds the helmet opening with the lip to deform to engage the head and neck of the wearer. Therefore, because of the closeness of the shell of the helmet to the skull of the wearer and the fluid-tight contact of the edging lip, water is prevented from entering interiorly of the helmet upon

the driver contacting the water feet first. Additionally, because of the contemplated low impact, the helmet of this invention is constructed to be of extremely lightweight material with the outer shell being quite thin. As a result, the weight of the helmet upon the driver is minimized which substantially decreases the fatiguing factor of the driver during racing. Additionally, the helmet of this invention is envisioned to employ the use of a strap about the person's neck which is to break away upon the helmet incurring any resistance. This breakaway feature decreases the injury to the user if the helmet incurs any significant force relative to the head of the driver.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a side view of the helmet of this invention which is shown placed upon the wearer's head;

FIG. 2 is a front view of the helmet of this invention showing more clearly the interior thereof; and

FIG. 3 is a cross-sectional view of the helmet of this invention taken along line 3—3 of FIG. 1.

DETAILED DESCRIPTION OF THE SHOWN EMBODIMENT

Referring particularly to the drawings, there is shown in FIG. 1 the helmet 10 of this invention which is located upon the skull of a wearer 12. The helmet 10 includes an outer shell 14 which is constructed of a lightweight thin sheet material such as a glass fibrous plastic material or the like. Exteriorly applied to the outer shell 14 is a thin color coating 16.

Fixed within the interior of the helmet 10 is a cushioning material 18. The cushioning material 18 will normally take the form of a plastic foam material or some other similar impact absorbing material. It is envisioned that the actual thickness of the cushioning material 18 will be no more than one-fourth of an inch. However, it is to be understood within the scope of this invention to use larger or smaller thicknesses of cushioning material 18.

A thin covering 20 is to cover the cushioning material 18 and it is adapted to come into direct contact with the skull of the wearer. The covering 20 will normally take the form of a nylon material. However, it is to be considered within the scope of this invention to employ other types of materials.

As can be readily seen in FIG. 3 of the drawing, the covering 20 encases the periphery of the cushioning material 18 and then is affixed to the interior of the outer shell 14. It is also to be noted that the cushioning material 18 is spaced a certain distance from the edge 22 of the shell 14. Conventional straps 24 and 26 are secured to the shell 14 and are adapted to connect together around the neck of the wearer 12. The straps 24 and 26 are constructed of a material which will readily break if a strong force is applied to the helmet 10 tending to tear the helmet from the wearer. In such an instance the straps 24 and 26 will break apart facilitating removal of the helmet 10 from the wearer, thereby minimizing injury to the wearer.

Located entirely about the helmet opening 28 is an edging strip 30. The edging strip comprises a bifurcated base section which is adapted to overlap the edge 22 and is to be permanently affixed thereto as by bonding. The exteriorly protruding portion of the edging strip 30 is substantially thin and extends to an apex 32. The material of construction of the strip 30 is to be a flexible

resilient material such as rubber or other similar composition. Rubber is preferable since rubber is readily flexible yet is somewhat rigid.

The apex 32 of the strip 30 establishes a line contact with the wearer 12. Because of the deformable nature of the strip 30 and the overall snugness of the helmet 10 upon the wearer, a substantially fluid-tight contact is established between the wearer 12 and the edging strip 30. In other words, the entire apex 32 is in contact with a portion of the wearer 12 with the edging strip 30 slightly deforming to the contour of the wearer.

In summary, the helmet of this invention is designed to be extremely lightweight, thereby lessening the fatiguing factor of a motor boat racing driver. Additionally, the helmet of this invention is designed to not permit water to enter interiorly of the helmet in case the driver is thrown from the boat. It is estimated that upward of a dozen drivers each year die by "bucketing" which causes the driver's neck to break. The helmet of this invention is not designed to sustain a substantial direct impact as substantial impacts are not likely to incur in power boat racing.

Although the helmet 10 of this invention has been found to be especially applicable to the power boat racing environment, it is considered to be within the scope of this invention to employ the helmet of this invention in other environments where it has been found that

high impact resistance force is not needed and it is desirable to maintain the helmet in a fluid tight relationship with respect to the wearer.

What is claimed as new in support of Letters Patent is:

1. A protective helmet comprising:
 - a thin outer shell formed of a lightweight material, said shell having an access opening therein and being adapted to fit about a human head;
 - a cushioning material secured to the entire interior surface of said shell;
 - a thin sheet covering material attached to said cushioning material and covers all of said cushioning material; and
 - a rubber edging strip connected to said helmet about said access opening, said edging strip being semi-rigid but sufficiently flexible to deform about a substantially solid structure, the portion of said edging strip extending from said helmet being substantially thin to form a line contact entirely about the human head of the wearer of said helmet, whereby fluid-tight contact results entirely about the human head of the wearer and said edging strip, whereby the area of the edge of said helmet is minimized due to the thinness of the edge.

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