

Nov. 8, 1966

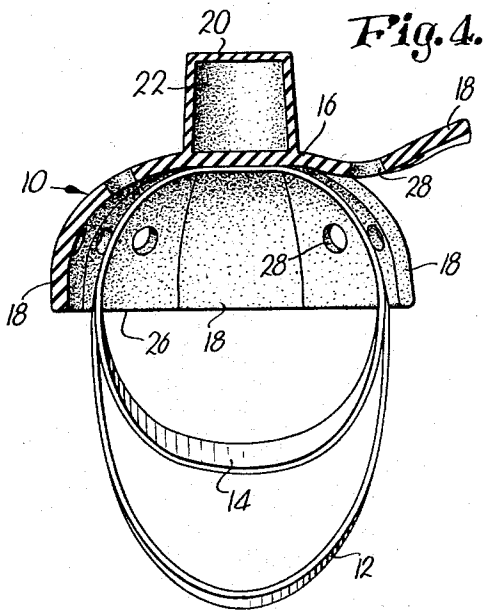
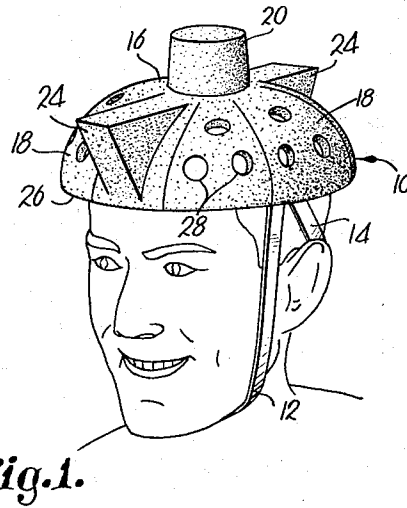
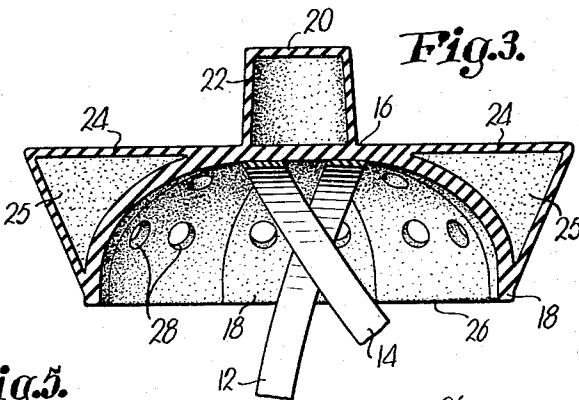
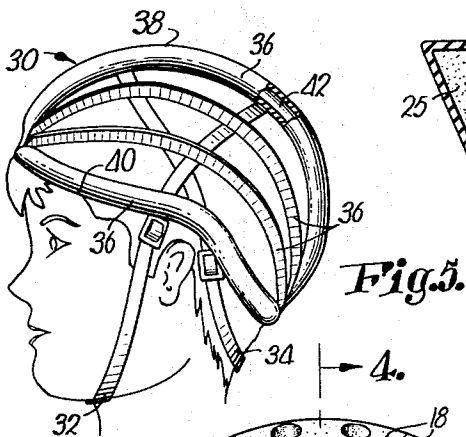
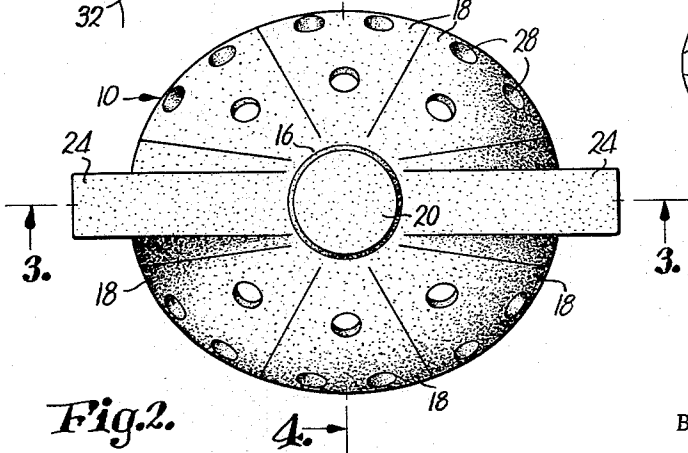
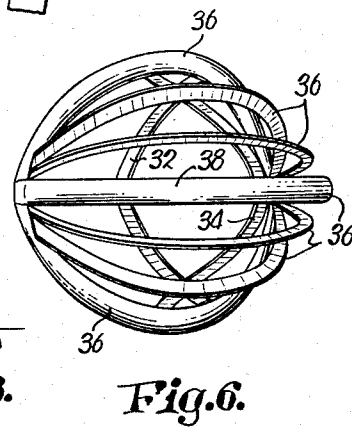
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3,283,349

SAFETY SIGNAL SKI CAP

Filed Oct. 26, 1964

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

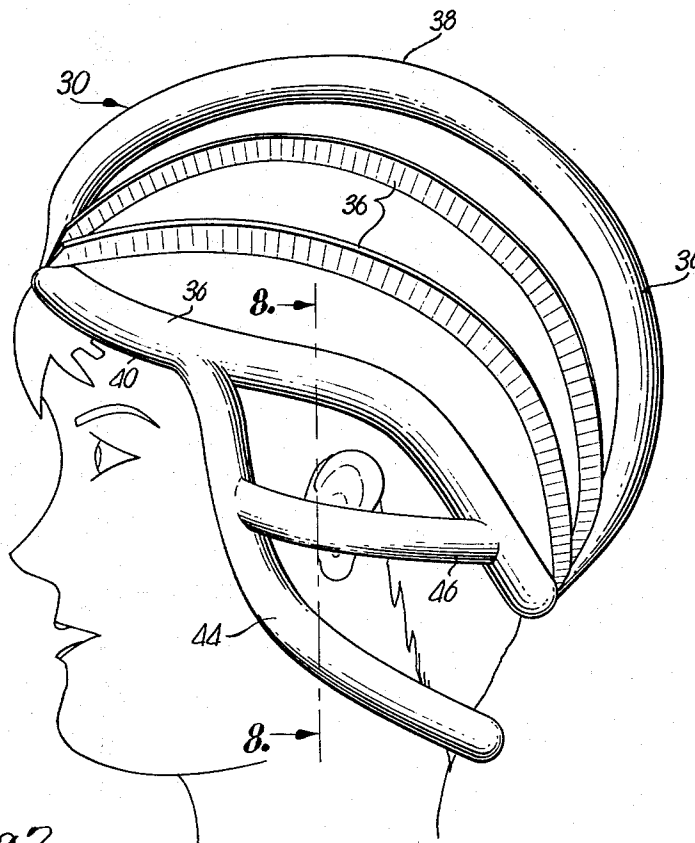


Fig. 7.

Fig. 8.

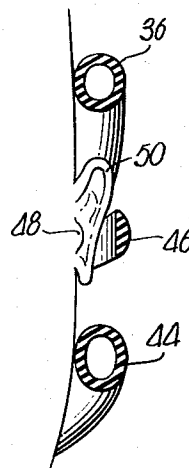
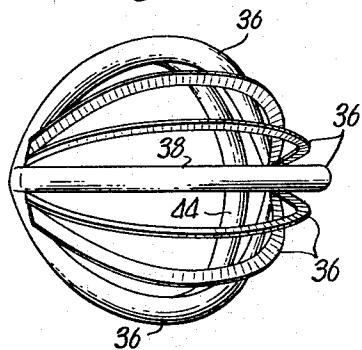


Fig. 9.



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3,283,349

SAFETY SIGNAL SKI CAP

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This invention relates to safety caps for water sports and, more specifically, to a cap for identifying a fallen water skier and for protecting the head of the skier.

In water skiing it is often customary for a fallen skier to immediately signal the operator of the towboat so that he will instantly be aware that the skier has fallen safely and is not injured. However, if the skier is injured, then no signal is given and the operator knows that it is imperative that he return immediately to aid the skier. If this occurs, it may be difficult to identify the location of the skier since, manifestly, a fast-moving towboat cannot reverse its course without making a wide swing. Thus, in the time interval between falling of the skier and reversal of the boat, it is possible that the location of the unconscious skier may be lost.

It is, therefore, the primary object of this invention to provide a cap for those engaged in water sports, particularly water skiing, which will render the user readily identifiable in the water so that he may be seen from a considerable distance.

It is another object of this invention to provide such a cap which will also protect the head of the user from colliding with foreign objects in the water, such as water skis or the like.

It is another object of the instant invention, and a particular feature thereof, to provide a cap as aforesaid which is constructed so as to yield upon impact with the water in a manner to prevent dislodging of the cap from the head.

Still another object of the instant invention is to provide a water safety cap wherein the means for holding the crown of the cap on the head cooperates with the yieldable feature set forth above to assure that the cap will remain in place during a hard fall.

An additional and important object of the invention is to provide a water safety cap which will remain on the head of the wearer during impact without the use of a chin strap.

Yet another object of this invention is to provide a water safety cap having sufficient buoyancy to remain afloat if tossed to a skier in the water or inadvertently dropped.

Other objects will become apparent as the detailed description proceeds.

In the drawing:

FIGURE 1 is a perspective view showing one embodiment of the cap on the head of the user;

FIG. 2 is a plan view of the cap shown in FIG. 1;

FIG. 3 is a vertical, sectional view taken along line 3—3 of FIG. 2;

FIG. 4 is a vertical, sectional view taken along line 4—4 of FIG. 2;

FIG. 5 is a side elevational view showing one form of a second embodiment of the cap in place on the head of the user;

FIG. 6 is a plan view of the cap shown in FIG. 5;

FIG. 7 is a side elevational view showing a second form of the embodiment shown in FIGS. 5 and 6;

FIG. 8 is a vertical, sectional view taken along line 8—8 of FIG. 7; and

FIG. 9 is a plan view of the cap shown in FIG. 7.

Referring to FIGS. 1—4, the numeral 10 designates a generally hemispherical crown which is held on the head of a user by a chin strap 12 and a headband 14, the latter

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being in the form of a strap adapted to embrace the rear, lowermost portion of the head as shown in FIG. 1.

Crown 10 is provided with a central, top portion 16 and eight flexible, generally triangular sections 18. Each of the sections 18 is joined to portion 16 at one apex thereof, the entire crown 10 being formed or molded of a resilient substance such as rubber or plastic, preferably a buoyant material of this class containing a multitude of minute air chambers therewithin. A cylindrical projection 20 may be provided which extends upwardly from portion 16 and defines a chamber 22 to render the cap buoyant or augment its buoyancy, if required. Buoyancy may also be provided or augmented by a pair of hollow, triangular projections 24 defining chambers 25, projections 24 extending forwardly and rearwardly, respectively, from a pair of opposed sections 18.

The margins of sections 18 remote from top portion 16 define the edge 26 of crown 10 which encircles the head of the user. Each section 18, except those sections provided with projections 24, have three water impact relief openings 28 therein for purposes to be fully explained hereinafter. The chin strap 12 is secured to the under-surface of top portion 16 at approximately the juncture of portion 16 with the rearward sections 18. Headband 14 is also joined to the underside of portion 16 but adjacent the juncture of portion 16 with the forward sections 18; thus, strap 12 and band 14 cross one another as is clear in FIG. 3.

The material forming crown 10 should be brightly colored so that the cap will be readily identifiable against a water background. In use, the cap is placed on the head of the user as illustrated in FIG. 1. If, for example, the user should happen to fall while water skiing, the cap will remain in place on the head of the skier and provide a means of readily spotting the skier in the water.

Since crown 10 is constructed of eight separate, flexible sections joined only at top portion 16, these sections will yield upon impact with the water as illustrated for the right-hand section 18 shown in cross section in FIG. 4. This could occur, for example, if this side of the head of the skier struck the water under considerable force, the three relief openings 28 in the flexing section serving to relieve the water pressure on the underside thereof.

It should be noted that strap 12 and band 14 are secured only to portion 16; therefore, flexure of sections 18 upon impact relieves the strain that would otherwise be imposed on strap 12 and band 14. The cumulative effect of this arrangement is to provide a cap which will not exert an excessive pull on strap 12 and band 14 upon impact with the water but which, nonetheless, will securely maintain the cap in position on the user's head in spite of the force of the water against the underside thereof. During hard impacts, a number of the sections 18 may flip to the upper position illustrated in FIG. 4; however, such sections still remain adjacent the head of the user to afford a measure of protection against collision with objects in the water, such as water skis or the tow bar.

The second embodiment of the instant invention includes two forms shown in FIGS. 5—9 wherein the numeral 30 designates the crown of this cap construction. In the form of FIGS. 5 and 6, crown 30 is held on the head by a chin strap 32 and a headband 34. Both strap 32 and band 34 contact the head of the user in the same manner as discussed above.

Crown 30 is divided into sections which comprise seven elongated, arcuate, flexible members 36 which extend from the front of the crown to the rear thereof and are laterally spaced from one another. The uppermost, center member 36 defines the top portion or crest 38 of crown 30, the normally lowermost pair of members 36 defining the edge 40 of crown 30. Members 36 converge and join at the front and rear of the crown as is clear in FIGS. 6 and 9

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and may be molded or formed of a resilient substance, preferably buoyant, such as rubber or plastic.

The three members 36 which define the crest 38 and the edge 40 of crown 30 each comprise a closed tube which presents a buoyancy chamber 42 therewithin. The other four members comprise arcuate ribs which are disposed on edge with respect to the head of the wearer. In this manner, the ribs give maximum protection to the wearer in the event of a collision with objects in the water.

In the form shown in FIGS. 5 and 6, strap 32 and band 34 are joined to crest 38 and, preferably, are not joined to the three members 36 which are laterally spaced from crest 38. In analogous fashion as that shown and described for the first embodiment of this invention, strap 32 and band 34 are joined to the rearward and forward portions of crest 38 respectively.

The cap of FIGS. 5 and 6 is utilized in the same manner as described above for the first embodiment. Members 36 should be brightly colored to render the cap easily identifiable against a water background. Again, the force of the water upon impact will tend to cause yielding of the various members 36 except the center member, which is securely held in place by strap 32 and band 34. As in the first embodiment, strap 32 and band 34 are relieved of the impact pressure since they are connected only to the center member 36, and the construction of the crown is such as to permit yielding of the other members without placing excessive stress on the strap or the band. Thus, it is assured that the cap will remain on the head even during severe water impacts.

Since relatively large air spaces are present between adjacent members 36, however, it is possible to construct this form of the cap with strap 32 and band 34 joined to several or all of the members 36. Manifestly, this will minimize the yielding of the members upon impact and will place greater strain on the strap and the band and, for this reason, this alternate construction is not preferred.

Referring to FIGS. 7-9, it may be seen that the cap construction there shown differs from FIGS. 5 and 6 in that a headband 44 is employed which interconnects the two tubular members 36 defining the edge 40 of crown 30. Headband 44 in this form of the invention is not a flexible strap, but instead, is of tubular configuration and similar in construction to the three members 36 forming the edge and crest of the crown. Thus, headband 44 is relatively rigid but, being composed of a resilient plastic or rubber substance, has sufficient resiliency to flex when the crown is positioned on the head of the wearer to thereby provide a means of gripping the head to hold the cap firmly in place.

It may be noted that headband 44 is configured such that the ears of the wearer are disposed between the headband and the edge 40 of the crown. A pair of elongated bars 46 interconnect the headband and the rear portion of the crown at edge 40 thereof as is clear in FIG. 7, which shows one of the bars 46. The remaining bar is hidden from view in the figures. Each bar 46 forms a guard which extends across the associated ear of the wearer to protect the external auditory canal from sudden water force when the side of the head strikes the water. Bars 46 extend generally horizontally when the cap is on the head and the wearer is erect, each bar being longitudinally arcuate particularly at the forward end thereof which merges with headband 44.

The effect and purpose of the particular configuration of each bar 46 may be appreciated by viewing FIG. 8, wherein it may be seen that the tragus 48 of the ear is spaced from the bar, while the external ear 50 is in closely spaced relationship to the bar or may even contact the bar. The purpose of the relatively wide spacing between the tragus 48 and the bar 46 is to provide sufficient relief to prevent the bar from pushing against the tragus upon impact. If this were to happen, the external auditory canal would be closed and damage to the inner ear could

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occur. The arcuate configuration of the bar, however, prevents undue pressure against the tragus and allows the relatively tough cartilage of the external ear 50 to absorb any shock upon impact. Additionally, the outer surface of bar 46 is transversely convex so that water forced against the side of the head will diverge at the ear and tend to be diverted away from the external auditory canal, thereby protecting the eardrum from water concussion.

Manifestly, the form of the invention shown in FIGS. 7-9 has the distinct advantage from the comfort and wearer appeal standpoint of eliminating the need for a chin strap, as well as providing a means of protecting the ears of the wearer from water concussion. Damage to eardrums is a hazard of water skiing and other water sports which may be substantially reduced through usage of the ear guard shown and described herein.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. A water safety cap comprising:

a crown having a plurality of flexible, head-protecting sections, and a central, top portion intercoupling said sections and permitting independent flexing of respective sections upon impact, the margins of said sections remote from said portion defining the edge of said crown; and

means attached to said crown at said portion for holding the latter on the head of a wearer whereby to permit free movement of said edge away from the head to absorb the shock of said impact and thereby prevent dislodging of the cap from the head.

2. The invention of claim 1, wherein said crown comprises a buoyant structure.

3. The invention of claim 1, wherein said holding means includes a headband adapted for disposition in engagement with the rear, lowermost portion of the head.

4. A water safety cap comprising:

a crown having a central, top portion and a plurality of generally triangular, flexible sections each joined to said portion at one apex thereof for flexure away from the head of a wearer from a normal, head-contacting position to a disposition out of substantial head contact upon impact, the margins of said sections remote from said portion defining the edge of said crown; and

means attached to said crown at said portion for holding the latter on the head of the wearer whereby to permit free movement of said edge away from the head to absorb the shock of said impact and thereby prevent dislodging of the cap from the head.

5. The invention of claim 4, wherein said holding means comprises a chin strap and a headband, the latter being adapted for disposition in engagement with the rear, lowermost portion of the head.

6. The invention of claim 4, wherein said crown is provided with structure defining a buoyancy chamber, at least certain of said sections having water impact relief openings therein.

7. A water safety cap comprising:

a crown having a number of elongated, flexible, laterally spaced, head-protecting members extending from the front of the crown to the rear thereof to present a crest and an edge, one of said members defining said crest; and

means attached to said one member for holding the crown on the head of the wearer, whereby to permit free movement of said edge away from the head upon impact to absorb the shock of said impact and thereby prevent dislodging of the cap from the head.

8. The invention of claim 7, wherein said holding means comprises a chin strap and a headband, the latter being adapted for disposition in engagement with the rear, lowermost portion of the head.

9. A water safety cap comprising:

a crown having a number of elongated, flexible, laterally spaced, head-protecting members extending from

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the front of the crown to the rear thereof, there being an edge defined by two of said members; and holding means comprising a headband connecting said two members and adapted to engage the rear, lowermost portion of the head with the ears of the wearer disposed between the headband and the edge of the crown, said headband being relatively rigid but having sufficient resiliency to flex when the crown is positioned on the head to thereby grip the latter.

10. The invention of claim 9, wherein is provided a pair of guards for protecting respective ears of the wearer, said guards extending between said headband and the edge of the crown.

11. The invention of claim 10, wherein each of said guards comprises an elongated bar interconnecting the

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headband and the rear portion of the crown and having a transversely convex outer surface.

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