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SKI CAP HAVING SAFETY FEATURES

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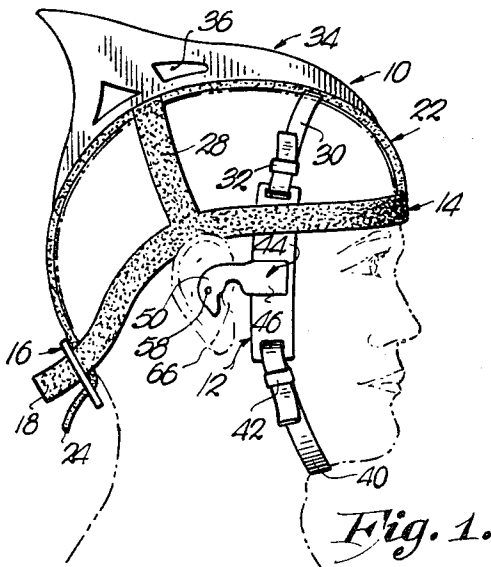


Fig. 1.

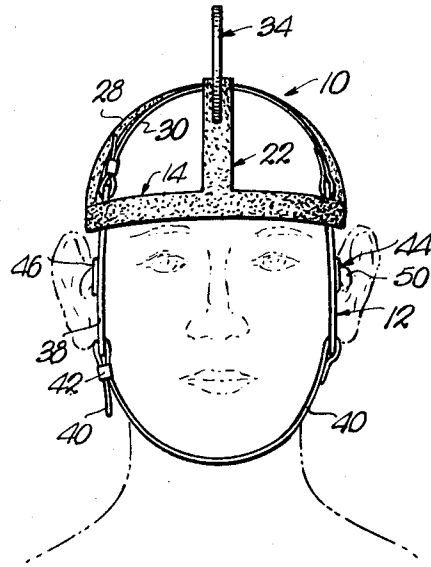


Fig. 2.

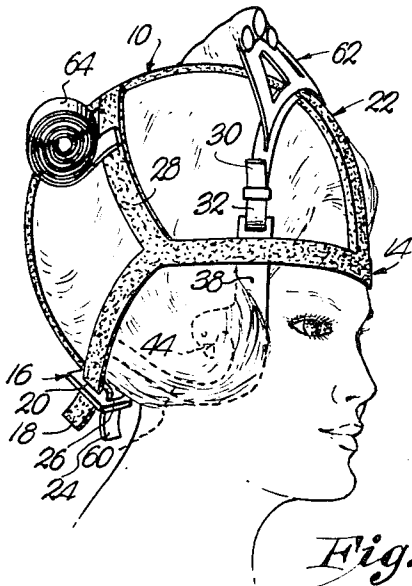


Fig. 3.

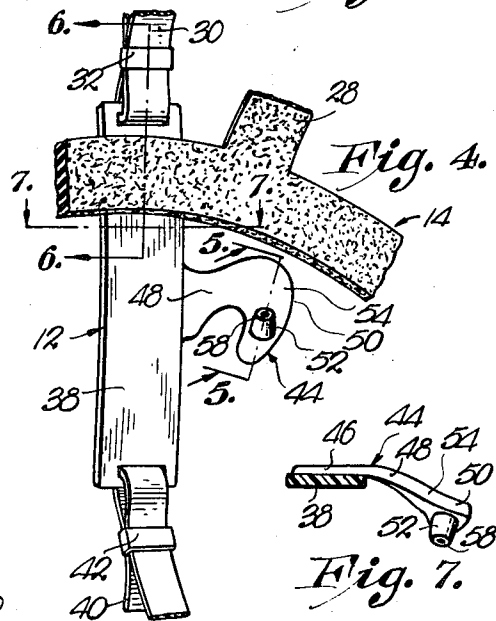


Fig. 4.

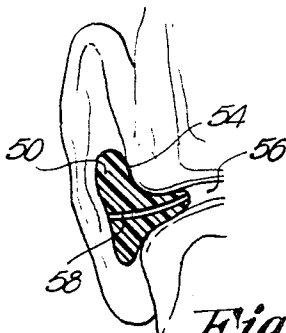


Fig. 5.

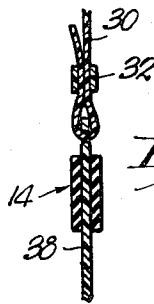


Fig. 6.

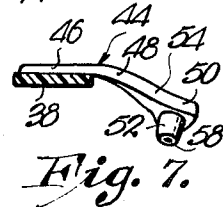


Fig. 7.

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SKI CAP HAVING SAFETY FEATURES

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This invention relates to a water safety cap and, more particularly, to a cap for providing optimum ear protection for water skiers and surfboard riders.

It is the primary object of my invention to provide a safety cap for water skiing and other water sports wherein novel ear protection units are provided to substantially reduce the possibility of damage to the eardrum and inner ear of the wearer of the cap, particularly when the wearer falls and strikes the water with sudden and extreme impact. Heretofore, small individual earplugs have generally been used to protect ears against such water concussion hazards, but these plugs are easily dislodged from the ear and lost.

Accordingly, an important object of the present invention is to provide a water safety cap having earplug structure wherein plug elements are biased into the external auditory canals of a wearer of the cap, whereby inadvertent dislodgment from the ear is substantially precluded. Additionally, guard means is provided to limit the insertion depth of the earplugs to thereby prevent damage to the eardrum of the wearer.

Yet another object of the instant invention is to provide a cap of the aforementioned character wherein the plug elements have novel detailed construction to assure maximum ear protection. For example, a bore is formed in the plug to permit restricted fluid communication therethrough and also to facilitate hearing. Furthermore, the plug is mounted at angles corresponding to the natural inclination of the external auditory canal of the wearer whereby proper insertion into the ear is greatly facilitated.

In the drawing:

FIGURE 1 is a side elevational view of a water safety cap made pursuant to the teachings of my invention, showing the same worn by a man;

FIG. 2 is a front elevational view thereof;

FIG. 3 is a perspective view of a second type of water safety cap showing the same worn by a woman;

FIG. 4 is a fragmentary, enlarged, inner perspective view of an ear unit and the adjacent connections thereof of the cap shown in FIGS. 1 and 2;

FIG. 5 is a cross-sectional view taken along line 5—5 of FIG. 4;

FIG. 6 is a cross-sectional view taken along line 6—6 of FIG. 4; and

FIG. 7 is a cross-sectional view taken along line 7—7 of FIG. 4.

In the embodiment of the invention shown in FIGS. 1, 2 and 4—7, there is provided a crown, broadly designated by the numeral 10, having a pair of ear protector units 12 for the corresponding sides thereof. Crown 10 includes an elastic headband 14 extending generally horizontally rearwardly from the forehead of the wearer of the cap and sloping downwardly behind the ear to the nape of the neck. One end (not shown) of headband 14 is secured to the clamp 16 at the nape of the neck, the opposite end 18 of headband 14 being frictionally retained in a slot 20 (shown only in FIG. 3 embodiment) formed in clamp 16.

An arcuate top strap 22 is secured to headband 14 at the forward central portion thereof and extends rearwardly over the head of the wearer with the free end 24 being frictionally retained in a slot 26 (FIG. 3) formed in clamp 16. A pair of opposed rear webs 28 interconnect top strap 22 and headband 14 adjacent the ear of the wearer. A pair of opposed front webs 30 also intercon-

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nect headband 14 and top strap 22 and are provided with adjustment clips 32. A safety signal flag 34 is mounted on the upper surface of top strap 22 and is preferably brightly colored so as to be readily identifiable in the event that the wearer of the cap accidentally falls into the water. A pair of openings 36 are formed in flag 34 to increase the flexibility thereof.

Headband 14, top strap 24, and rear webs 28 are preferably formed of elastic material and thus may be integrally joined to each other substantially as shown in FIGS. 1, 2 and 4. Thus, end 18 of headband 14 and end 24 of top strap 22 may be tightly drawn through the respective slots in clamp 16 to securely hold crown 10 on the head of the wearer. Ends 18 and 24 will be maintained in the desired position by frictional engagement within the slots formed in clamp 16. Front web 30 is heat-sealed or otherwise secured at the opposed ends thereof and may be adjusted by removing clip 32 to permit varying of the lapped-over length of the web.

Each ear protector unit 12 includes a depending link 38 attached to headband 14 forwardly of the corresponding ear of the wearer, there being a chin strap 40 interconnecting the lowermost ends of the opposed links 38 as shown in FIG. 2, it being noted that chin strap 40 includes an adjustment clip 42. Plug-mounting structure in the form of a flange 44 extends laterally rearwardly from link 38 and slopes inwardly of crown 10 as best shown in FIG. 7.

Link 38 and flange 44 are preferably constructed of a flexible plastic or rubber-like material which may be secured by a heat-sealing operation. Flange 44 includes a base 46 secured to link 38, an integral neck 48 extending rearwardly from base 46, and an integral, downwardly extending planar guard member 50 disposed substantially parallel with and overlying the respective ear of the wearer.

With reference to FIG. 4, an earplug 52 is mounted on the inner face 54 of guard 50 and extends laterally inwardly of the crown in alignment with the external auditory canal 56 (FIG. 5) of the respective ear of the wearer. Guard 50 and earplug 52 have a longitudinal bore 58 formed therethrough to permit restricted fluid communication between the corresponding eardrum of the wearer and the external medium, i.e., the atmosphere or water. Plug 52 is adapted for complementary insertion into external auditory canal 56 and is mounted on guard 50 at an angle so that it is inclined forwardly and then upwardly of crown 10 at angles corresponding substantially to the natural inclination of canal 56.

In use, crown 10 is placed on the head of the wearer and headband 14, top strap 22, and front web 30 suitably adjusted to tightly secure crown 10 in position. Chin strap 40 is disposed beneath the chin of the wearer and also suitably adjusted by means of clip 42. Flange 44 will then be disposed with neck 48 directly overlying tragus 66 of the ear and with earplug 52 aligned with auditory canal 56 for insertion thereinto as shown in FIG. 5. Plug 52 is inserted forwardly along the inner surface of tragus 66 and then upwardly to follow canal 56 toward the eardrum. The resiliency of the sloping flange 44 yieldably urges the plug inwardly and thus serves as biasing means to hold the plug within canal 56 and thereby preclude inadvertent removal thereof. The illustrated embodiment of the invention shows that neck 48 preferably overlies tragus 66 so that guard 50 will not be urged out of position by outwardly extending portions of the ear as would be the case if guard 50 were supported from above, below or behind the ear.

The depth of travel of plug 52 into canal 56 is limited by guard member 50 as the inner face 54 of the latter engages the proximal external portions of the ear as best shown in FIG. 5. It will be recognized that plug 52 is axially aligned with auditory canal 56 since plug 52 is

mounted on guard member 50 at forward and upward angles corresponding substantially to the natural inclination of canal 56.

Bore 58 extending through earplug 52 permits the wearer of the cap to hear without any substantial interference and, additionally, if the wearer should accidentally fall into the water while skiing, water flowing past bore 58 will create a suction, thereby relieving pressure on the wearer's eardrum and protecting against damage to the inner ear.

It will also be noted that after a skier has fallen into the water, he may easily be seen due to the provision of the readily identifiable safety signal flag 34. Thus, it will be appreciated that I have provided a water safety cap having numerous hazard-reducing features, particularly with respect to ear protection.

The embodiment of the invention shown in FIG. 3 is substantially identical to the above-described embodiment, as indicated by the like reference numerals, except that an ear strap 60 underlies the corresponding ear of the wearer and interconnects the lowermost end of link 38 with head band 14. Ear strap 60 aids in securing crown 10 to the head of the wearer and is designed to obviate the need for chin strap 40. It will also be noted from viewing FIG. 3, that a decorative headpiece 62 may be provided in lieu of safety signal flag 34, the headpiece 62 being designed to camouflage parts of crown 10. Further decoration may include a coiled muffler 64 mounted at one end thereof to rear web 28, the muffler becoming a streamer at high skiing speed.

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;

a pair of ear protector units for corresponding sides of said crown, each of said units including:

a link;

means dependently attaching said link to the crown at the corresponding side thereof;

an earplug adapted for complementary insertion into the external auditory canal of a respective ear of a wearer of the cap; and

structure mounting said plug on said link to dispose the plug laterally inwardly of the crown in alignment

with the auditory canal for insertion therein when the cap is worn, said structure including biasing means yieldably urging said plug inwardly of the crown.

2. The invention of claim 1, said biasing means comprising a resilient flange secured to said link and sloping inwardly of the crown, said plug being mounted on the flange.

3. The invention of claim 1, said biasing means including guard means to limit the depth of travel of said plug into the auditory canal.

4. The invention of claim 3, said guard means comprising a flange disposed substantially parallel with and overlying the respective ear of a wearer, said plug being mounted on the inner face of the flange, whereby when said plug is inserted into the respective auditory canal, said inner face of the flange will engage the ear to limit the plug insertion depth.

5. The invention of claim 1, said plug having a bore formed therethrough to permit restricted fluid communication between the corresponding eardrum of the wearer and the external medium.

6. The invention of claim 1, said link being attached for disposition forwardly of the ear of the wearer, said biasing means including a resilient flange secured to the link and extending laterally rearwardly therefrom, said flange overlying the ear and sloping inwardly of the crown, said plug being mounted on the inner face of said flange whereby said flange serves as biasing means to yieldably urge said plug inwardly and as guard means to limit the insertion depth of the plug.

7. The invention of claim 6, said plug being inclined upwardly and forwardly of the crown at angles corresponding substantially to the natural inclination of the auditory canal.

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