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(54) Heel strap for swimming flippers of the open-shoe type

Fersenband für Schwimmflossen mit offenem Schuh

Bande talon pour palmes de natation de type chaussure ouverte

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Description

[0001] The present invention relates to a heel strap for swimming flippers of the open-shoe type.

[0002] As is known, a swimming flipper of the open-shoe type is provided in its front part with a blade and in its rear part with an open shoe made from rubber or similar elastomeric material, into which the diver, who is provided with suitable footwear with a sole, inserts his foot. A flipper of this type is particularly suitable for scuba diving, and is provided in the rear part of the shoe with a strap which secures the diver's heel, in order to retain the foot correctly in the flipper. These straps can be made in different types, and may for example include a rubber belt provided at both ends with buckles which are fixed to the sides of the flipper shoe. These buckles, into which the ends of the strap are inserted, allow a degree of adjustment of the capacity and tension of the strap. However, these straps have a number of drawbacks, such as the fact that both ends of the strap must be inserted into the corresponding buckles whenever the flipper is put on and must be removed whenever the flipper is taken off. The belts can suffer from wear over time as an inevitable result of these continued operations of insertion into the buckles and removal therefrom, and are subject to a certain loss of tension in the long term, which is detrimental to their effectiveness.

[0003] The object of the present invention is therefore to provide a heel strap for swimming flippers of the open-shoe type which overcomes the drawbacks of the known straps described above, which can be customized, and which advantageously has a markedly greater effectiveness and durability than the known straps.

[0004] This object is achieved by the present invention by means of a heel strap for a swimming flipper of the open-shoe type, characterized in that it comprises a tubular resilient element with a round cross section connected removably at each end to means for supporting a rigid eyelet which can be attached removably to a corresponding pivot pin projecting laterally from the flipper.

[0005] According to a further aspect of the present invention, the tubular resilient element with a round cross section is an elastic element used in underwater guns of the crossbow type.

[0006] Further characteristics and advantages of the present invention will be made clear in the course of the following description, to be considered as a non-limiting example, referring to the attached drawings, in which:

- Fig. 1 shows a partial view in lateral elevation of a typical swimming flipper of the open-shoe type on which a heel strap according to the present invention is to be used;
- Fig. 2 shows a view from above of the flipper of Fig. 1;
- Fig. 3 shows a view in lateral elevation of the heel strap according to the present invention; and
- Fig. 4 shows a view from above of the strap according to the present invention.

[0007] With reference to the appended drawings and with particular reference to Fig. 1, the number 1 indicates a flipper having a blade 2 in its front part and having an open shoe 3 made from rubber or similar elastomeric material in its rear part. The diver, wearing suitable footwear 4 with a sole, inserts his foot into this open shoe 3, and the foot is kept in the correct position in the flipper 1 by means of a heel strap 5 according to the present invention. At the sides of the shoe 3 (see also Fig. 2 of the appended drawings) there are provided two projecting pivot pins 6 in diametrically opposite positions, each pivot pin having a head 7 of larger diameter in its upper part. These pivot pins 6 can be made, for example, in one piece with the shoe 3. One end of the heel strap 5 is engaged in each of these pivot pins 6, by means of suitable metal attachment eyelets 9.

[0008] The heel strap 5 (see also Figures 3 and 4 of the appended drawings) comprises a tubular resilient element 10 having a round cross section and suitable thickness, for example a length of elastic used in underwater guns of the crossbow type. Each end of this resilient element is fixed to a plastic bush 12 which has a threaded part (not visible in the drawings) onto which is screwed a plastic cap 11 for supporting the metal attachment eyelet 9. The end of the cap 11 is fixed to a metal pivot pin 13 provided with a head 14 in which is formed, in a direction orthogonal to the pivot pin 13, a through hole into which is inserted a further pivot pin 15 whose ends are fixed to two parallel side pieces 16 which support the metal eyelet 9. This pivot pin 15 can rotate with respect to the head 14, and therefore each of the metal eyelets 9 can be rotated with respect to the cap 11 to which it is fixed and with respect to the tubular resilient element 10. Each of the metal eyelets 9 also comprises a first suitably shaped hole 17 for fitting onto the head 7 of the corresponding pivot pin 6, and a second suitably shaped hole 8 adapted to be positioned under the head 7 of the corresponding pivot pin when the strap has been attached. The strap 5 according to the invention is completed by a rubber element 18 comprising, on the one hand, a flat part 19 for supporting the diver's heel and, on the other hand, a grip ring 20. A through hole 21, into which the tubular resilient element 10 of the strap 5 is inserted, is formed in the central part of the rubber element 18.

[0009] The present strap is advantageously highly customizable, since it can be made simply by obtaining a tubular resilient element 10 with a round cross section, such as an elastic element for underwater guns of the crossbow type, cutting it to size according to the characteristics of the user's foot and/or of the user's footwear, and inserting this resilient element 10 into the through hole 21 of the rubber element 18 provided with the heel support part 19. At this point, the bushes 12 with the threaded parts on their outer ends are fixed to the ends of the resilient element 10, and then the cap 11, provided with the metal eyelet 9 which is rotatable with respect to it, is screwed onto each bush.

[0010] The strap is attached in a simple and effective

way to the pivot pins 6 provided at the sides of the flipper 1, by fitting the first hole 17 of greater diameter of the metal eyelet 9 onto the head 7 of each pivot pin, and then positioning the eyelet in such a way that the second hole 8 of smaller diameter is placed, on completion of the attachment, around the pivot pin 6 and therefore under the head 7. In order to insert his foot into the flipper 1, the diver simply has to grip the ring 20 and pull the strap 5 which is elastically elongated, and, when the foot has been inserted, release the ring 20 in such a way that the part 19 comes into contact with the heel, thus providing a suitable pressure on the heel. In order to remove the foot from the flipper 1, it is simply necessary to grip the ring 20 again and to pull the strap 5 again in such a way that the strap 5 is elastically elongated and allows the foot to be taken out.

Claims

1. Heel strap (5) for swimming flippers (1) of the open shoe type (3) comprising a resilient element (10) having a round cross section connected removably to each end to means (12, 11) for supporting a rigid eyelet (9) which can be attached removably to a corresponding pivot pin (6,7) projecting laterally from a flipper (1), said resilient element (10) is a tubular resilient element, **characterised in that** a bush (12) is fitted on each end of the tubular resilient element (10) each bush comprising a threaded part onto which a corresponding cap (11) can be screwed, this cap being connected to the eyelet (9).
2. Strap (5) according to Claim 1 **characterized in that** the tubular resilient element (10) with a round cross section is a length of elastic used in underwater guns of the crossbow type.
3. Strap (5) according to Claim 1, **characterized in that** the rigid eyelet (9) is connected to the support means (12, 11) with the aid of elements (13, 14, 15) which allow it to rotate to a certain extent.
4. Strap (5) according to Claim 3, **characterized in that** the cap (11) comprises a pivot pin (13) provided with a head (14) having a through hole positioned in a direction substantially orthogonal to the pivot pin (13), through which it is possible to pass a pivot pin (15) for the rotation of the eyelet (9) with respect to the cap (11).
5. Strap (5) according to Claim 1, **characterized in that** the eyelet (9) comprises a first suitably shaped hole (17) of greater diameter and a second suitably shaped hole (8) of smaller diameter.

Patentansprüche

1. Fersenband (5) für Schwimmflossen (1) vom Typ eines offenen Schuhs (3), umfassend ein federndes Element (10) mit rundem Querschnitt, das mit jedem Ende mit Mitteln (12, 11) zum Halten einer starren Öse (9) lösbar verbunden ist, die an einem entsprechenden Schwenkzapfen (6,7) lösbar befestigt werden kann, der seitlich aus der Flosse (1) vorsteht, wobei das federnde Element (10) ein rohrförmiges federndes Element ist, **dadurch gekennzeichnet, dass** eine Hülse (12) auf jedem Ende des rohrförmigen federnden Elements (10) aufgesetzt ist, wobei jede Hülse einen Gewindeabschnitt aufweist, auf den eine entsprechende Kappe (11) aufgeschraubt werden kann, wobei die Kappe mit der Öse (9) verbunden ist.
2. Band (5) nach Anspruch 1, **dadurch gekennzeichnet, dass** das röhrenförmige federnde Element (10) mit einem runden Querschnitt ein Stück eines Gummibands ist, das in Unterwasserschusswaffen vom Typ einer Armbrust verwendet wird.
3. Band (5) nach Anspruch 1, **dadurch gekennzeichnet, dass** die starre Öse (9) mit der Halteeinrichtung (12, 11) mit der Hilfe von Elementen (13, 14, 15) verbunden ist, die es ihr erlauben, in einem gewissen Ausmaß zu drehen.
4. Band (5) nach Anspruch 3, **dadurch gekennzeichnet, dass** die Kappe (11) einen Schwenkzapfen (13) aufweist, der mit einem Kopf (14) mit einem Durchgangsloch versehen ist, das in einer Richtung angeordnet ist, die im Wesentlichen senkrecht zu dem Schwenkzapfen (13) ist, durch das ein Schwenkzapfen (15) zum Drehen der Öse (9) bezüglich der Kappe (11) geführt werden kann.
5. Band (5) nach Anspruch 1, **dadurch gekennzeichnet, dass** die Öse (9) ein erstes geeignet geformtes Loch (17) mit größerem Durchmesser sowie ein zweites geeignet geformtes Loch (8) mit kleinerem Durchmesser aufweist.

Revendications

1. Sangle de talon (5) pour palmes de plongée (1) de type ouvert (3) comprenant un élément élastique (10) à section transversale ronde, relié de façon amovible, à chaque extrémité, à des moyens (12, 11) de support d'un oeillet rigide (9) pouvant être fixé

de façon amovible à un pivot correspondant (6, 7) faisant saillie latéralement d'une palme (1), ledit élément élastique (10) est un élément élastique tubulaire, **caractérisée en ce qu'**une douille (12) est montée sur chaque extrémité de l'élément élastique tubulaire (10), chaque douille comprenant une partie filetée sur laquelle peut se visser un bouchon correspondant (11), ledit bouchon étant relié à l'oeillet (9).

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2. Sangle (5) selon la revendication 1, **caractérisée en ce que** l'élément élastique tubulaire (10) à section transversale ronde est un brin d'élastique utilisé dans les fusils de chasse sous-marine de type arbalète.

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3. Sangle (5) selon la revendication 1, **caractérisée en ce que** l'oeillet rigide (9) est relié aux moyens de support (12, 11) à l'aide d'éléments (13, 14, 15) lui permettant de tourner dans une certaine mesure.

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4. Sangle (5) selon la revendication 3, **caractérisée en ce que** le bouchon (11) comprend un pivot (13) pourvu d'une tête (14) comportant un trou traversant positionné dans une direction sensiblement orthogonale au pivot (13), pouvant être traversé par un pivot (15) pour la rotation de l'oeillet (9) par rapport au bouchon (11).

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5. Sangle (5) selon la revendication 1, **caractérisée en ce que** l'oeillet (9) comprend un premier trou de forme appropriée (17) ayant un diamètre supérieur et un second trou de forme appropriée (8) ayant un diamètre inférieur.

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