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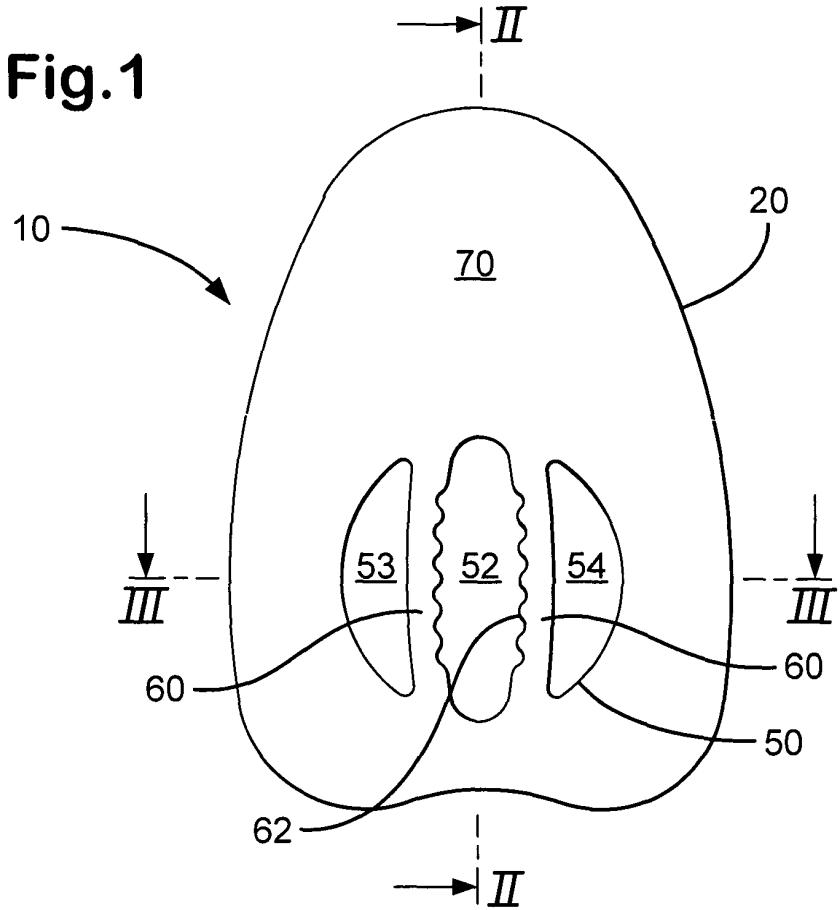
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### (54) An armband for swimming

(57) The present invention relates to an armband (10) for use in swimming. The armband (10) includes a portion of buoyant material (20, 30, 40) which defines

an arm receiving aperture (50) and gripping means (60) for gripping a wearer's arm. The gripping means (60) are integrally formed with the portion of buoyant material (20, 30, 40).

Fig. 1



**Description**

**[0001]** This invention relates to armbands of the type that are used as an aid in swimming.

**[0002]** Inflatable armbands are sometimes worn as an aid to swimming, particularly by those who are learning to swim. These armbands are useful in adding to the buoyancy of the wearer such that he or she can more easily stay afloat. Inflatable armbands are, however, disadvantageous in that time and effort must be expended in order to inflate them for use. They may also become unusable if punctured.

**[0003]** It is an object of this invention to address these problems.

**[0004]** According to one aspect of this invention, there is provided an armband for use in swimming, the armband including: a buoyant portion of buoyant material arranged to define an arm-receiving aperture; and gripping means for gripping a wearer's arm received in the aperture, wherein the gripping means are integrally formed with the buoyant portion.

**[0005]** This is advantageous in that the buoyant material need not be inflated. Additionally, providing gripping means that are integral with the buoyant portion results in an armband that is cheap and easy to manufacture.

**[0006]** Preferably the buoyant material is a foam material and preferably one that is resiliently deformable, such as PE/EVA foam. Preferably, the buoyant portion is formed from a single piece of the buoyant material.

**[0007]** The gripping means may include resiliently deformable structure adjacent the aperture and arranged to be resiliently deformed by insertion of a wearer's arm and thereby to grip the arm. The gripping means may include one or more projections that project into or at least so as to partially define the aperture. The gripping means may include one or more members that extend across the aperture. Where there are at least two such members that extend across the aperture, those members may be arranged to form arm-gripping jaws. Surfaces of jaws may be shaped and configured to promote grip between the jaws and a wearer's arm inserted therewith. The jaws may be provided with, for example, undulating or serrated surfaces.

**[0008]** The gripping means may include one or more lobes that project into the arm-receiving aperture. The gripping means may include one or more further apertures adjacent the arm-receiving aperture arranged such that a respective resiliently-deformable length of material is provided and bounded by each further aperture and the arm-receiving aperture. For example, the or each lobe may have an aperture therethrough. In preferred embodiments of this invention, there may be three or four lobes. ,

**[0009]** The armband may include a plurality of, substantially identical, ones of the buoyant portion, each including the gripping means integrally formed therewith and wherein these buoyant portions are stacked to form

a laminate. Each buoyant portion that goes to make up the laminate may be bonded to the buoyant portion with which it is juxtaposed. The bonding may include one or more of, for example: an adhesive and welding.

**[0010]** Specific armbands that embody this invention are now described by way of example only and with reference to the accompanying drawings, in which:

10 Figure 1 is a plan view of one armband having a pair of arm-gripping jaws;

15 Figure 2 is a sectional view of the Figure 1 armband, the section being taken along the line II-II of Figure 1;

20 Figure 3 is a sectional view of the Figure 1 armband, the section being taken along the line III-III of Figure 1;

25 Figure 4 is a plan view of another armband having three arm-gripping lobes; and

Figure 5 is a plan view of a further armband having four arm-gripping lobes.

**[0011]** Figure 1 shows an armband 10 for use as an aid by a child (not shown) in swimming. The armband 10 is a laminate that is made up of three layers. These layers 20,30,40 are shown in the sectional views of Figures 2 and 3. Each layer 20,30,40 is, in general, the same as each other layer 20,30,40. A representative one 20 of the layers only will therefore be described in detail, it being understood that the other two layers 30,40 are, in general, the same.

**[0012]** With reference to Figure 1, the layer 20 is a single piece of resiliently deformable and buoyant material, which in this embodiment is PE/EVA foam. It is substantially planar and shaped so as to be generally rectangular, but with rounded corners. In addition, the two shorter sides of the generally rectangular layer 20 are also rounded, with one side being convex and the other concave. The major dimensions of the layer 20 are 260mm long, 185mm wide and about 16mm thick. The concave side is formed with a diameter of 130mm and the convex side is formed with a diameter of 170mm.

**[0013]** The layer 20 has an arm-receiving aperture 50 formed in it. This aperture 50 is generally circular and positioned adjacent the concave side of the layer 20. The diameter of the arm-receiving aperture is 105mm. The layer 20 also includes gripping means in the form of jaws 60. The jaws 60 are two strips of integral material of the layer 20 that each extend across the arm-receiving aperture 50, parallel to the major axis of the generally rectangular layer 20 and spaced apart from each other so as to divide the arm-receiving aperture 50 into three smaller apertures: one 52 between the two jaws 60, and one 54,56 to the side of each jaw and between the wall

of the arm-receiving aperture 50. Sides of the two jaws 60 that face one another are provided each with an undulating profile 62 that is intended to increase grip on an arm received therebetween.

**[0014]** A body portion of the layer 20 that surrounds and extends from the arm-receiving aperture 50 and the jaws 60 includes, in this embodiment, a majority of the buoyant foam material of layer 20 and so constitutes a buoyant portion 70.

**[0015]** As stated, the layer 20 is stacked with two other layers 30,40 that are generally the same as the layer 20. Each layer 20,30,40 is bonded to its neighbour using an appropriate adhesive to form a laminated structure, which constitutes the armband 10. Thus, the cross section of the armband 10 perpendicular to the direction of stacking is substantially constant.

**[0016]** In use, the armband 10 is worn by a child inserting his or her arm through the aperture 52 that is between the two jaws 60. This causes the jaws 60 to be forced apart, into the space of the apertures 54,56 to either side of the jaws. As the material of the armband 10 is resiliently deformable, the jaws 60 exert a force inwardly on the child's arm, thereby securing the armband 10 to that arm. The armband 10 is worn with the concave side thereof adjacent the child's body. The concave shape of this side, at least to some degree, follows the shape of the child's body and so renders the armband 10 comfortable to use. At least one armband 10 would be worn on each arm.

**[0017]** Figure 4 shows another armband 100 that is in many ways the same as the armband 10 described above with reference to Figures 1,2 and 3. For example, the other armband 100 has the same external shape and is a laminate, made up of three layers, only a top one of which 120 is shown in Figure 4. This other armband 100 differs however in the arrangement of its gripping means. Specifically, the other armband 100 lacks the jaws 60 that extend across the arm-receiving aperture 50 of the first-described armband 10. Although this other armband 100 includes an arm-receiving aperture 150, instead of jaws it has three lobes 160 that project into that aperture 150. The lobes are semi-circular, are evenly distributed about the periphery of the aperture 150 and are integral with material of the layer 120. Each lobe 160 also includes a lobe aperture 152 therethrough that is concentric with the respective lobe. Thus, the lobes 160 have the appearance of convex arcuate projections that project into the arm-receiving aperture 150.

**[0018]** This other armband 100 is used in much the same way as that 10 described above with reference to Figures 1,2 and 3. In use, when an arm is inserted between the lobes 160 and into the arm-receiving aperture 150, the lobes 160 are deformed to at least partially occupy space of the lobe apertures 152. As the material of the armband 100 is resiliently deformable, the deformed lobes 160 exert a force on the arm so as to grip it.

**[0019]** The further armband 200 shown in Figure 5 is the same as that described above with reference to Fig-

ure 4, but includes four lobes 260. These lobes 260 are the same as those lobes 160 previously described, but are four in number.

**[0020]** It is envisaged that the armbands 10,100,200 described above are arranged such that, in use, each produces a buoyancy of not less than 15 newtons. This magnitude of buoyancy is considered suitable for an armband for use by a child of 6 to 12 years of age in accordance with European Regulation EN 13138-1 Type B. If an armband that embodies this invention were to be provided for use by a person of an age outside this range, the buoyancy and/or dimensions of that armband would be chosen accordingly. Specifically, it is envisaged that an armband that embodies this invention and that is for use by a younger child may be provided. In so doing, it will be understood that one or more of the armbands described above may need to be scaled down.

**[0021]** For example, if that child were between 2 and 6 years old, each armband may be sized in order to have a buoyancy of 12.5 newtons, again, in accordance with the Regulation referred to above.

**[0022]** Although a European regulation is referred to above, armbands that embody this invention may alternatively or additionally be arranged so as to be in accordance with regulations in force in other jurisdictions.

## Claims

- 30 1. An armband for use in swimming, the armband including: a buoyant portion of buoyant material arranged to define an arm-receiving aperture; and gripping means for gripping a wearer's arm received in the aperture, wherein the gripping means are integrally formed with the buoyant portion.
2. An armband according to claim 1, wherein the buoyant material is a foam material this is resiliently deformable and the buoyant portion is formed from a single piece of that material.
3. An armband according to claim 1 or claim 2, wherein the gripping means includes resiliently deformable structure adjacent the aperture and arranged to be resiliently deformed by insertion of a wearer's arm and thereby to grip the arm.
4. An armband according to any preceding claim, wherein the gripping means includes one or more projections that project into, or at least so as partially to define, the aperture.
5. An armband according to any preceding claim, wherein the gripping means includes one or more members that extend across the aperture.
6. An armband according to claim 5, wherein there are at least two such members that extend across the

aperture and those members are arranged to form arm-gripping jaws.

7. An armband according to claim 6, wherein surfaces of the jaws are shaped and configured to promote grip between the jaws and a wearer's arm inserted therebetween. 5

8. An armband according to claim 7, wherein the jaws are provided with undulating or serrated surfaces. 10

9. An armband according to any preceding claim, wherein the gripping means includes one or more lobes that project into the arm-receiving aperture. 15

10. An armband according to any preceding claim, wherein the gripping means includes one or more further apertures adjacent the arm-receiving aperture and arranged such that a respective resiliently-deformable length of material is provided between each further aperture and the arm-receiving aperture. 20

11. An armband according to claim 10, wherein the or each lobe has an aperture therethrough. 25

12. An armband according to any one of claims 9 to 11, wherein there are three or four lobes.

13. An armband according to any preceding claim, 30 wherein the armband includes a plurality of, substantially identical, ones of the buoyant portion, each including the gripping means integrally formed therewith and wherein these buoyant portions are stacked to form a laminate. 35

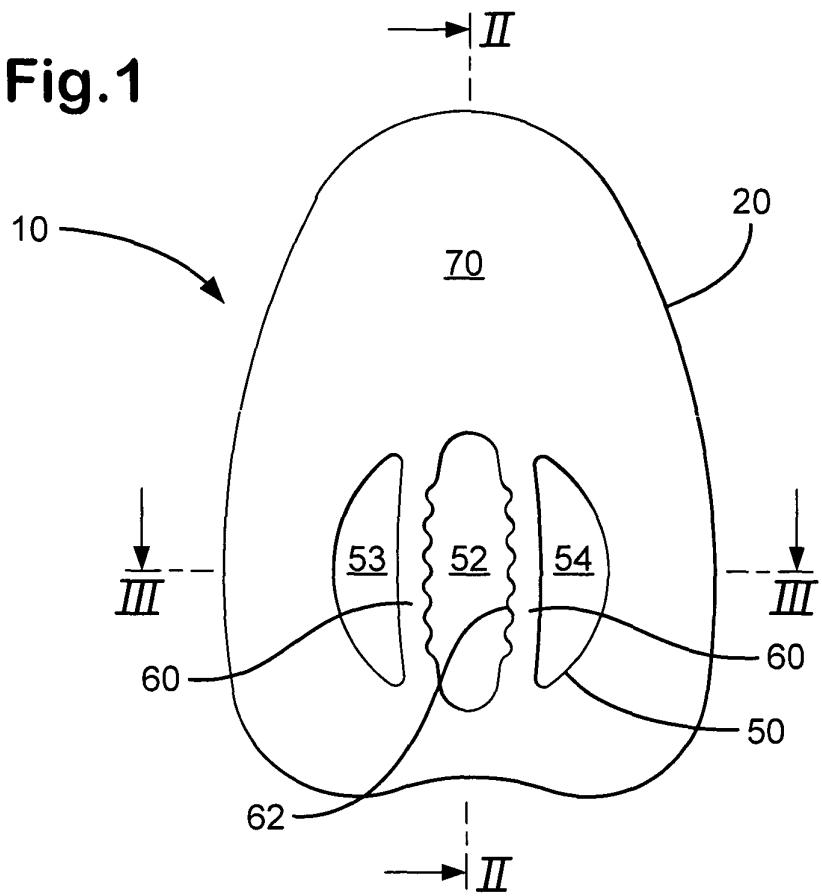
14. An armband according to claim 13, wherein each buoyant portion that goes to make up the laminate is bonded to the buoyant portion with which it is juxtaposed. 40

15. An armband substantially as described hereinbefore with reference to the accompanying drawings and/or as shown in those drawings. 45

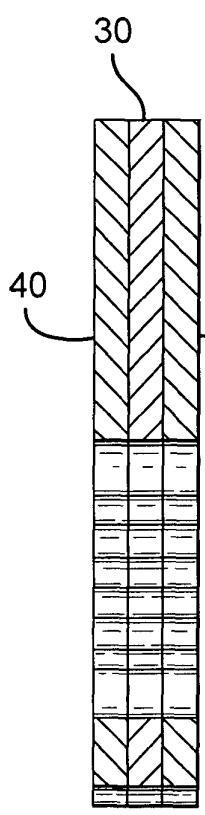
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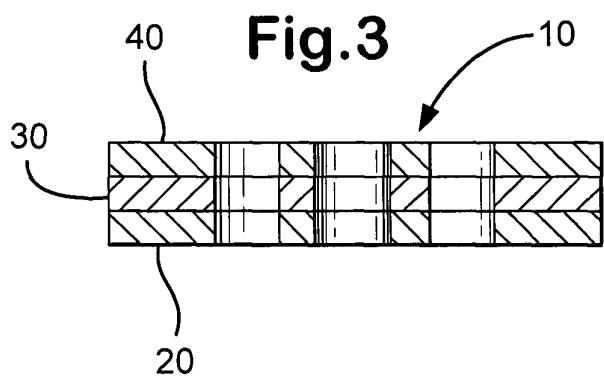
**Fig.1**

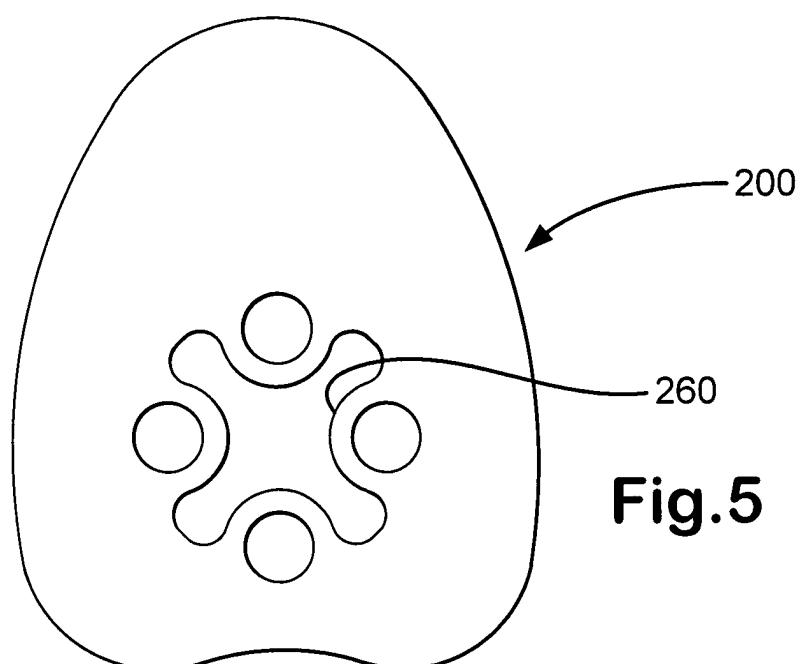
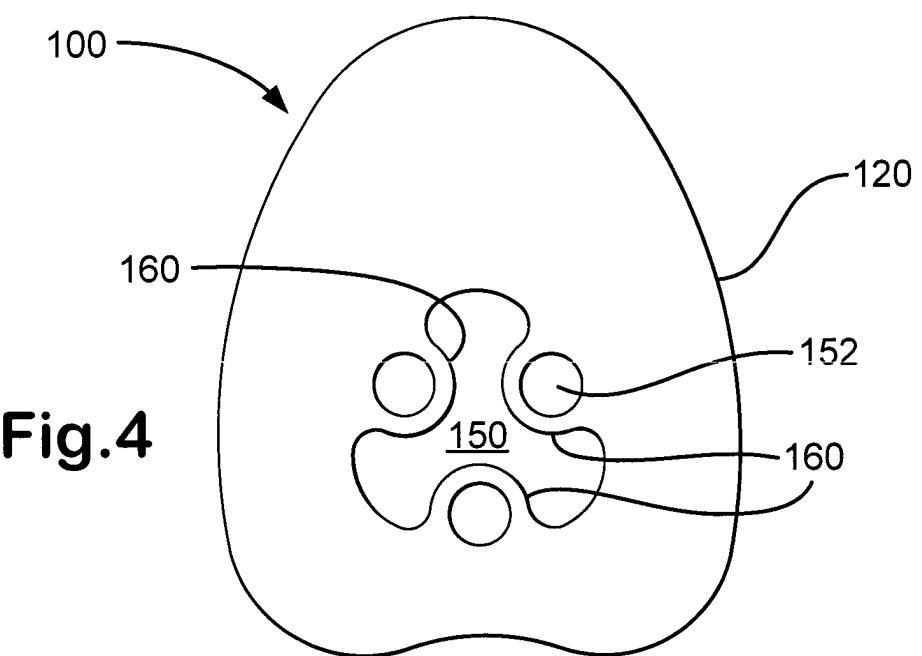


**Fig.2**



**Fig.3**







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## EUROPEAN SEARCH REPORT

Application Number  
EP 04 25 7227

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	FR 2 698 280 A (WESCO) 27 May 1994 (1994-05-27)	1-4, 9, 12, 15	B63C9/135 A63B31/00
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X	US 4 538 998 A (HOELZEL ET AL) 3 September 1985 (1985-09-03) * column 3, line 31 - line 39; figures 5, 6 *	1-3, 13-15	
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Y	GB 2 123 677 A (SAMUEL HAMILTON * BUSBY) 8 February 1984 (1984-02-08) * page 1, line 54 - line 84; figure 1 *	5-8, 10, 11	
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			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
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The present search report has been drawn up for all claims			
1	Place of search	Date of completion of the search	Examiner
	The Hague	11 April 2005	DE SENA HERNANDORENA
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on. The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

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