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(54) **Swimming goggles with step-less adjustment**

Schwimmbrille mit stufenloser Verstellung

Lunettes de natation à réglage continu

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**Description****Field of the Invention**

5 **[0001]** The subject invention relates to a type of swimming goggles with step-less adjustment, or specifically, to one with step-less adjustment of nose bridge to suit swimmers that require different spans of nose bridges.

**Background of the Invention**

10 **[0002]** As we know, the nose bridge of a conventional type of swimming goggles may be adjusted to lengthen or shorten the span between the left and right lens frames, to suit different face shapes of different users. However, the nose bridge of the conventional type of swimming goggles involves only three-step adjustment (as shown in Fig. 1), therefore, it could not satisfy the need of the general consumers. Besides, the conventional type of swimming goggles involves a check mechanism for the adjustment, it results in easier an adjustment in the natural direction but a difficult  
 15 operation in the reverse direction. As illustrated in Fig. 1, the nose bridge of a prior art of swimming goggles 7 involves a plate unit 71, on which are several ribs 710 that are checked against a seat 720 on a lens frame 72. The opposite sides of the ribs 710 are designed to have guided sides. But, for the sake of checking performance, one of the sides has a larger guided angle, so it is more labor-consuming in the process of adjustment. In case of improper operation, it may even result in failure of movement. More worrisome is that, during the adjustment and moving process, the ribs  
 20 710 on the seat 71 will be squeezed and deformed by the seat 720. After extended use, said ribs 710 will be flattened and could not be engaged effectively to the seat 720. The result will be loose swimming goggles when worn by the user, or even water seepage. Some users who could not coordinate with the 3-step adjustment will feel uncomfortable. In view of the above drawbacks, it has become a subject for breakthrough to seek a design of swimming goggles to  
 25 suit the different spans of nose bridge of different users.

**[0003]** US-A-5857221 discloses a pair of swimming goggles comprising a pair of eyecups held by a pair of elastic cords encircling the wearers head.

**[0004]** The primary objective of the present invention of swimming goggles with step-less adjustment is to provide a type of swimming goggles with step-less adjustment of nose bridge span, so the nose bridge span of the swimming goggles can be adjusted to suit the different users' requirements. The nose bridge in the invention can be pulled to  
 30 enlarge or reduce its span, to suit the nose shape of the user.

**[0005]** The secondary objective of the present invention of swimming goggles with step-less adjustment is to provide free adjustment of the span of the nose bridge, either lengthening the upper span or shorten the lower span of the nose bridge, in order to suit the outline of different nose bridges.

**[0006]** This viewed from a first aspect the present invention provides swimming goggles with step-less adjustment  
 35 comprising two lens frame units, each of said lens frame units accommodating a lens; a first joining unit on the inside end of each lens frame unit and a second joining unit on the outside end of each lens frame unit, wherein each joining unit has two accommodating holes with clasp openings; a first string passing along the upper rim of each lens frame unit and a second string passing along the lower rim of each lens frame unit whereby to maintain the lens frame units spaced apart to form a nose bridge, wherein said first and second string are fixed in the accommodating holes of the  
 40 first and second joining units on each lens frame unit; and a headband device joined to the outside each of each lens frame unit, said headband device comprising a headband; wherein said goggles are adapted to enable the user to regulate the length of the first and second string between the two lens frame units whereby to adjust the span of the nose bridge.

**[0007]** With such features, the user can adjust the strings and the span between two lens frames, to achieve the effect of step-less adjustment of the span of nose bridge of swimming goggles.

**[0008]** According to the above features, the two strings are wound in position respectively along the upper and lower rims of the lens frame units, with a length exposed at one end on the outside of the lens frame unit, to facilitate control in the adjustment of the span.

**[0009]** According to the above features, the first joining units are located on the inside of the lens frame, while the second joining unit is located on the outside of the lens frame, the two joining units respectively have accommodating  
 50 holes with at least one clasp opening, said clasp opening serving to position the two ends of the strings for the nose bridge.

**Brief Description of Drawings**

55 **[0010]**

Fig. 1 is a perspective view of a prior art of swimming goggles.

Fig. 2 is a perspective view of the invention of swimming goggles with step-less adjustment.

Fig. 3 is a top view of the invention of swimming goggles with step-less adjustment.

Fig. 4 is a front view of the invention of swimming goggles with step-less adjustment.

Fig. 5 is a longitudinal section view of the lens frame unit in the subject invention of swimming goggles with step-less adjustment.

**Brief Description of Numerals**

**[0011]**

1	swimming goggles
3	protective pad
4	headband device
10, 10'	lens frame unit
20, 20'	string
30, 30'	face contact part
50, 50'	lens
101, 101'	first joining unit
102, 102'	second joining unit
103, 103'	clasp piece
104, 104'	headband through hole
1011, 1011', 1021, 1021'	clasp opening

**Detailed Description of Preferred Embodiment**

**[0012]** As shown in Fig. 2, the subject invention of swimming goggles 1 comprises the following: two lens frame units 10 and 10', two strings 20 and 20', two protective pads 30 and 30', and a headband device 4. Said two lens frame units 10 and 10' are positioned left and right and respectively accommodating two lenses 50 and 50'. Said two lens 50 and 50' are implanted and fixed onto the lens frame units 10 and 10'. On the inside ends of the two lens frame units 10 and 10' are fixed two first joining units 101 and 101', while on the outside ends of the two lens frame units 10 and 10' are fixed two second joining units 102 and 102'. On the first and second joining units 101, 101' and 102, 102' are respectively two accommodating holes involving clasp openings 1011, 1011' and 1021, 1021' serving to clasp one end of the two strings 20 and 20'. Extending from and correspondingly on the upsides and downsides of the lens frame units 10, 10' are clasp pieces 103, 103'. Said clasp pieces 103, 103' and the lens frame units 10, 10' are combined to form a fixing groove, as shown in Fig. 5, which serves to fix the winding strings in position. On the lens frame 10, 10' and next to the second joining units 102, 102' are two through holes 104, 104' that serve to accommodate the insertion of the headband device 4.

**[0013]** Said two strings 20 and 20', made of a flexible material, are respectively pulled through said accommodating holes involving clasp openings 1011, 1011'. The strings are pulled around the clasp pieces 103 and 103' on the edges of the two lens frame units 10 and 10', with appropriate stretches extended from the outside ends of the lens frame units 10, 10', ending in the shape of a ball to enable convenient handling by the user's hand. Said protective pads 3 are respectively inserted in the far sides of the two lens frames 10 and 10' away from the lenses 50 and 50', each having a face contact part 30 or 30' with adequate flexibility to provide comfortable contact with the user's face and the effects of better attraction and resistance to seepage.

**[0014]** Pleaser refer to Fig. 2, the subject invention of swimming goggles is assembled in the following steps: the middle parts of the two strings 20 and 20' are snapped onto the accommodating holes of the clasp openings 1011, 1011' of the first joining units 101, 101' on the lens frame units 10, 10', then along the rims of the lens frame units 10, 10' and snapped onto the clasp pieces 103, 103'. Then, the ends of the two strings 20 and 20' are snapped in position onto the second joining units 102, 102', maintaining an appropriate distance from the two lens frame units 10, 10', and exposing a small section at the end of the two strings 20 and 20', so the two lens frame units 10 and 10' can be joined as one unit.

**[0015]** In the adjustment of the span of the invention of swimming goggles, as shown in Figs. 3 and 4, just pull out the string 20 (20') from one side of the second joining unit 102 (102') to the clasp opening 1011 (1011'), and adjust the length of the upper and lower strings 20, 20' to suit the user's requirement of different arc formation and provide comfortable contact with the user's face. The span of the nose bridge of the invention of swimming goggles is adjusted by changing the length of the two strings 20 and 20', thus enabling step-less adjustment to suit the nose bridge configuration of different users who can feel comfortable.

**[0016]** One feature that must be mentioned is that, due to the innovated assembling and configuration of the subject

invention of swimming goggles, an entire set or an individual frame unit can be sold to a buyer who may have multiple options to purchase a single-sided lens and frame of a different style or color.

[0017] Having proved that the subject invention is capable of achieving the anticipated objective, as described above, it has met the qualification for a patent right. However, the above description has covered merely the preferred embodiment of the subject invention.

## Claims

### 1. Swimming goggles (1) with step-less adjustment comprising:

two lens frame units (10,10'), each of said lens frame units accommodating a lens (50,50');  
a first joining unit (101,101') on the inside end of each lens frame unit and a second joining unit (102,102') on the outside end of each lens frame unit, wherein each joining unit has two accommodating holes with clasp openings (1011,1011',1021,1021');  
a first string (20) passing along the upper rim of each lens frame unit and a second string (20') passing along the lower rim of each lens frame unit whereby to maintain the lens frame units spaced apart to form a nose bridge, wherein said first and second string are fixed in the accommodating holes of the first and second joining units on each lens frame unit; and  
a headband device (4) joined to the outside edge of each lens frame unit, said headband device comprising a headband; wherein said goggles are adapted to enable a user to regulate the length of the first and second string between the two lens frame units whereby to adjust the span of the nose bridge.

2. Swimming goggles (1) as claimed in claim 1, wherein a portion of one end of the first and/or second string (20,20') is exposed on the outside of the lens frame unit (10,10') and terminates in a ball-shape to assist manual handling.

3. Swimming goggles (1) as claimed in claim 1 or 2, wherein a clasp piece (103,103') extends along the upper and lower rim of each lens frame unit (10,10'), each clasp piece forming a fixing groove with the lens frame unit to facilitate positioning of the string (20,20').

4. Swimming goggles (1) as claimed in any preceding claim wherein through holes (104,104') are positioned on each lens frame unit (10,10') adjacent to the second joining unit (102,102') to facilitate insertion of the headband.

## Revendications

### 1. Lunettes de natation (1) avec ajustage progressif comprenant :

deux unités de monture de lentille (10, 10'), chacune desdites unités de monture de lentille logeant une lentille (50, 50') ;  
une première unité de jointure (101, 101') sur l'extrémité intérieure de chaque unité de monture de lentille et une seconde unité de jointure (102, 102') sur l'extrémité extérieure de chaque unité de monture de lentille, dans lesquelles chaque unité de jointure a deux trous de logement avec des ouvertures de fermoir (1011, 1011', 1021, 1021') ;  
un premier cordon (20) passant le long du bord supérieur de chaque unité de monture de lentille et un second cordon (20') passant le long du bord inférieur de chaque unité de monture de lentille pour ainsi maintenir les unités de monture de lentille espacées l'une par rapport à l'autre pour former un pont, dans lesquelles lesdits premier et second cordons sont fixés dans les trous de logement des première et seconde unités de jointure sur chaque unité de monture de lentille ; et  
un dispositif de bandeau de tête (4) joint au bord extérieur de chaque unité de monture de lentille, ledit dispositif de bandeau de tête comprenant un bandeau de tête, dans lesquelles lesdites lunettes sont adaptées pour permettre à un utilisateur de régler la longueur des premier et second cordons entre les deux unités de monture de lentille pour ainsi ajuster l'envergure du pont.

2. Lunettes de natation (1) selon la revendication 1, dans lesquelles une partie d'une extrémité des premier et/or second cordons (20, 20') est exposée sur l'extérieur de l'unité de monture de lentille (10, 10') et se termine en une forme de bille pour aider la manipulation manuelle.

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3. Lunettes de natation (1) selon la revendication 1 ou 2, dans lesquelles une pièce de fermoir (103, 103') s'étend le long des bords supérieur et inférieur de chaque unité de monture de lentille (10, 10'), chaque pièce de fermoir formant une rainure de fixation avec l'unité de monture de lentille pour faciliter le positionnement du cordon (20, 20').
- 5 4. Lunettes de natation (1) selon l'une quelconque des revendications précédentes, dans lesquelles des trous débouchants (104, 104') sont positionnés sur chaque unité de monture de lentille (10, 10') à côté de la seconde unité de jointure (102, 102') pour faciliter l'insertion du bandeau de tête.

### 10 Patentansprüche

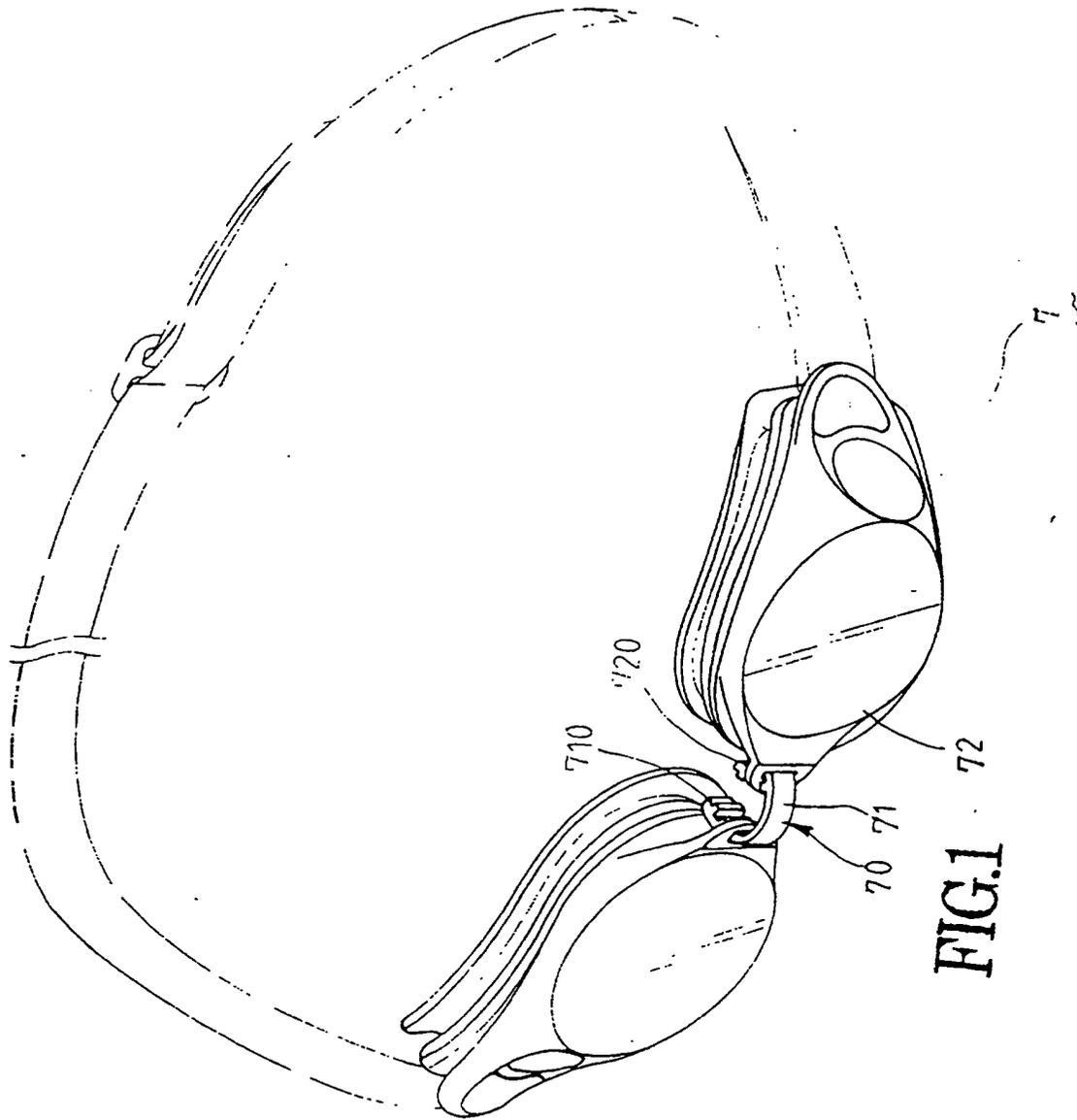
1. Schwimmbrille (1) mit stufenloser Einstellung, umfassend:

15 zwei Linsenrahmeneinheiten (10, 10'), wobei jede der Linsenrahmeneinheiten eine Linse (50, 50') fasst; eine erste Verbindungseinheit (101, 101') am inneren Ende jeder Linsenrahmeneinheit und eine zweite Verbindungseinheit (102, 102') am äußeren Ende jeder Linsenrahmeneinheit, wobei jede Verbindungseinheit zwei Anpassungslöcher mit Klammeröffnungen aufweist (1011, 1011', 1021, 1021'); eine erste Schnur (20), die entlang dem oberen Rand jeder Linsenrahmeneinheit geführt ist, und eine zweite Schnur (20'), die entlang dem unteren Rand jeder Linsenrahmeneinheit geführt ist, wodurch die Linsenrahmeneinheiten beabstandet gehalten werden, um eine Nasenbrücke zu bilden, wobei die erste und zweite Schnur in den Anpassungslöchern der ersten und zweiten Verbindungseinheit an jeder Linsenrahmeneinheit befestigt sind; und eine Kopfbandvorrichtung (4), die mit dem äußeren Rand jeder Linsenrahmeneinheit verbunden ist, wobei die Kopfbandvorrichtung ein Kopfband umfasst, wobei die Brille angepasst ist, um es einem Benutzer zu ermöglichen, die Länge der ersten und zweiten Schnur zwischen den beiden Linsenrahmeneinheiten zu regulieren, wodurch die Spannweite der Nasenbrücke eingestellt wird.

2. Schwimmbrille (1) wie in Anspruch 1 beansprucht, bei der ein Teil von einem Ende der ersten und/oder zweiten Schnur (20, 20') sich frei an der Außenseite der Linsenrahmeneinheit (10, 10') befindet und in einer Kugelform endet, um die manuelle Bedienung zu unterstützen.

3. Schwimmbrille (1) wie in Anspruch 1 oder 2 beansprucht, bei der ein Klammerstück (103, 103') sich entlang dem oberen und dem unteren Rand jeder Linsenrahmeneinheit (10, 10') erstreckt, wobei jedes Klammerstück mit der Linsenrahmeneinheit eine Halterille bildet, um die Positionierung der Schnur (20, 20') zu erleichtern.

4. Schwimmbrille (1) wie in irgendeinem vorhergehenden Anspruch beansprucht, bei der Durchgangslöcher (104, 104') an jeder Linsenrahmeneinheit (10, 10') benachbart zur zweiten Verbindungseinheit (102, 102') positioniert sind, um die Einführung des Kopfbandes zu erleichtern.



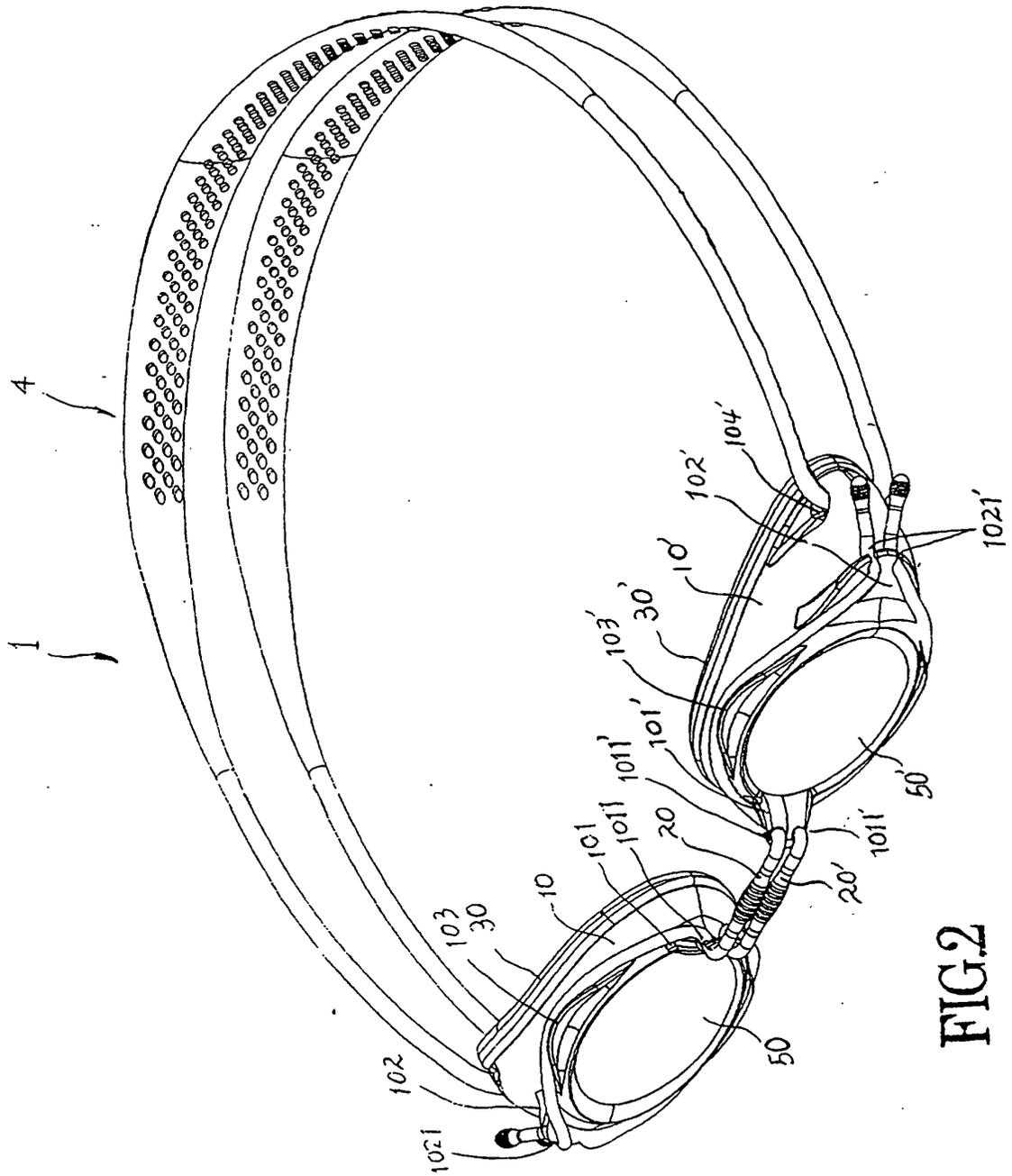


FIG. 2

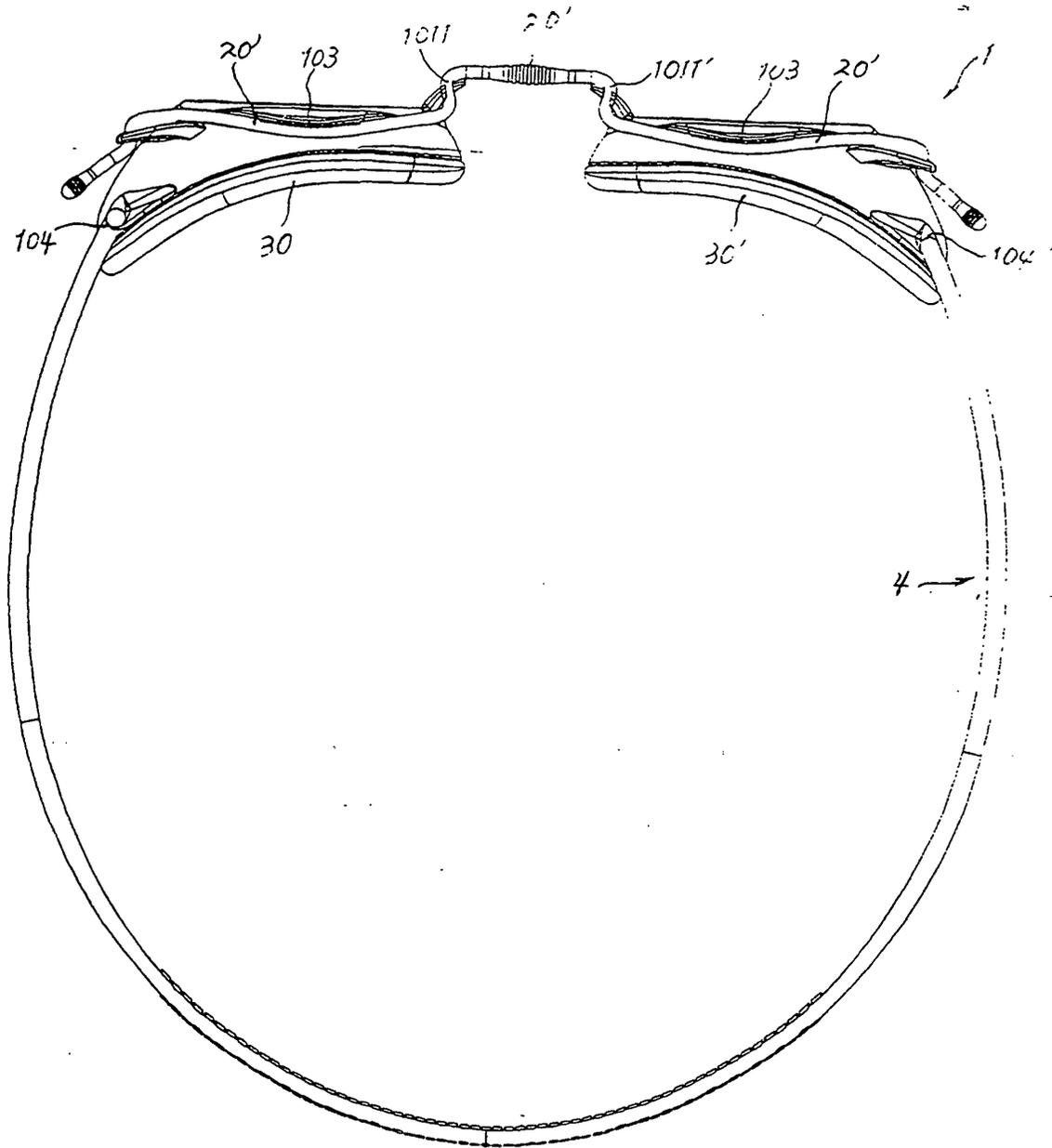


FIG. 3

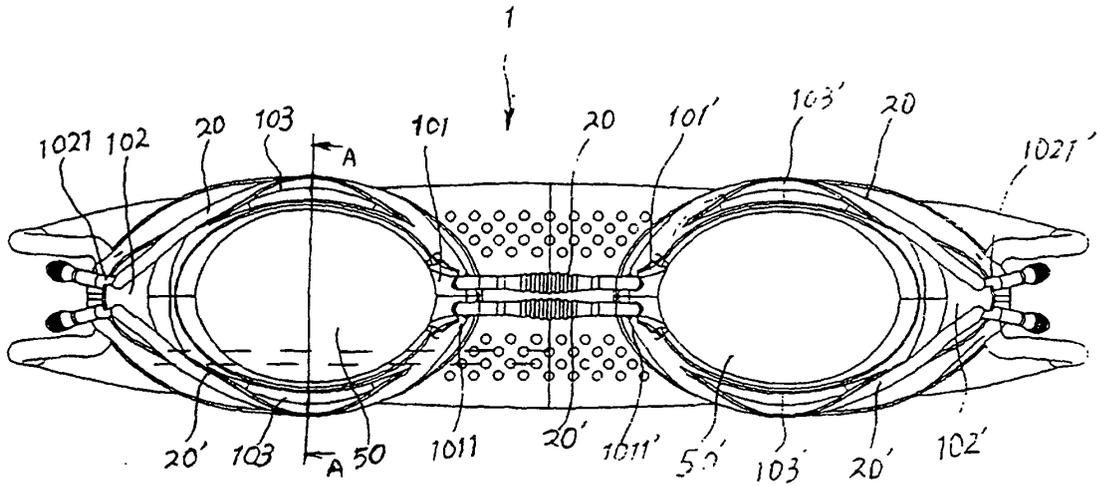


FIG. 4

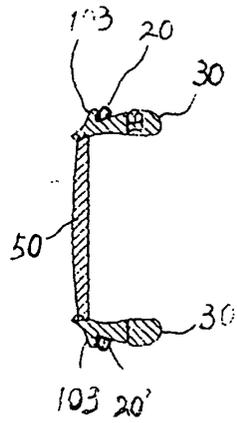


FIG. 5