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I, RAJANI RAJARAM, DELEGATE OF THE COMMISSIONER, hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2017904237 for a patent by FREEDOM PHYSIOTHERAPY WA PTY LTD as filed on 19 October 2017.

WITNESS my hand this
THIRTY FIRST day of July 2018

Rajani R.

RAJANI RAJARAM
DELEGATE OF THE COMMISSIONER



AUSTRALIA

Patents Act 1990

PROVISIONAL SPECIFICATION

Invention title:

“Jaw Support”

Applicant:

Freedom Physiotherapy WA Pty Ltd

The invention is described in the following statement:

“Jaw Support”

Field of the Invention

[001] The present invention relates to a device for supporting the jaw.

Background to the Invention

[002] When undergoing dental procedures, it is often necessary for the jaw to be held open for extended periods of time. During these periods, supporting the jaw in the open position can put significant strain on the muscles surrounding the jaw, thereby resulting in the possibility of injury.

[003] Devices have been proposed which may be used to support the jaw under the chin, thereby alleviating muscle strain. Such devices however have been relatively cumbersome and difficult to use. The present invention relates to a device provided for supporting the jaw which is compact, easy to use and relatively cost effective.

Summary of the Invention

[004] According to one aspect of the present invention there is provided a jaw support comprising:

a chest engaging member provided to rest on an upper area of the chest of a user below the jaw;

a neck support extending from the chest engaging member around a rear side of the neck of the user; and

a jaw support member connected to the chest engaging member;

wherein the jaw support member is pivotable between a first position, in which the jaw support member is adjacent the chest engaging portion, and a second position, in which the jaw support member the user may rest their chin on the jaw support member.

[005] 2. Preferably the chest engaging member comprises a first elongate member being generally U-shaped and the jaw support member comprises a second elongate member being generally U-shaped.

[006] Preferably the first and second ends of the second elongate member are rotatably mounted to respective first and second ends of the first elongate member such that the second elongate member is rotatable about an axis passing through the first and second ends of the first elongate member.

[007] In a preferred embodiment, the first and second elongate members comprise flat elongate members having the same shape such that, in the closed configuration, a surface of the second elongate member is adjacent and parallel to the a surface of the first elongate member along the length thereof.

[008] Preferably the first and second ends of the first and second elongate members lie in parallel planes and intermediate portions of the first and second elongate members are twisted relative to the first and second ends such that, in use, when the first and second ends are adjacent sides of the neck, the intermediate portions lie parallel to the surface of the chest of the user.

[009] Preferably the neck support comprises first and second arms extending outwardly away from first and second ends of the first elongate member respectively.

[010] In a preferred embodiment, the first and second arms comprise relatively flat curved members such that the first and second arms curve around towards the rear of the neck of the user.

[011] Preferably the first elongate member and the first and second arms are integrally formed from a resilient flexible material.

[012] Preferably distal ends of the first and second arms are separated by a gap.

[013] In a preferred embodiment, the intermediate portion of the jaw support member includes a recess to receive the chin of the user.

[014] In a preferred embodiment, a latching mechanism is provided between the first and second ends of the jaw support member and the first and second ends of the chest engaging member such that the jaw support member may be retained in one or more positions relative to the chest engaging member.

Brief Description of the Drawings

[015] The invention will now be described, by way of example, with reference to the following drawings in which:

[016] Figure 1 is an upper perspective view of a jaw support in accordance with the present invention in an open configuration;

[017] Figure 2 is a rear view of the jaw support of Figure 1 in the open configuration;

[018] Figure 3 is an upper perspective view of the jaw support of Figure 1 in a closed configuration;

[019] Figure 4 is a side view of the jaw support of Figure 1 in the closed configuration;

[020] Figure 5 is a front view of the jaw support of Figure 1 in the closed configuration;

[021] Figure 6 is a rear view of the jaw support of Figure 1 in the closed configuration;

[022] Figure 7 is a first exploded view of a first side of the jaw support of Figure 1;

[023] Figure 8 is a second exploded view of the first side of the jaw support of Figure 1;

[024] Figure 9 is an upper perspective view of the jaw support of Figure 1 in use;

[025] Figure 10 is a side view of the jaw support of Figure 1 in use;

[026] Figure 11 is a rear view of the jaw support of Figure 1 in use;

[027] Figure 12 is a front view of the jaw support of Figure 1 in use;

[028] Figure 13 is an upper perspective view of a second embodiment of a jaw support member in accordance with the present invention in a closed position;

[029] Figure 14 is a side view of the jaw support member of Figure 13;

- [030] Figure 15 is a front view of the jaw support member of Figure 13;
- [031] Figure 16 is a top view of the jaw support member of Figure 13;
- [032] Figure 17 is an exploded view of the jaw support member of Figure 13;
- [033] Figure 18 is a cross sectional view of the jaw support member of Figure 13;
- [034] Figure 19 is a cross sectional view of components of the connection between the jaw support member and the frame;
- [035] Figure 20 is a view of the jaw support member of Figure 13 with the locking mechanism in a first position;
- [036] Figure 21 is a view of the jaw support member of Figure 13 with the locking mechanism in a second position;
- [037] Figure 22 is a view of the locking mechanism in the locked position;
- [038] Figure 23 is a view of the locking mechanism in the unlocked position;
- [039] Figure 24 is a perspective view showing movement of the jaw support member between the open and closed positions; and
- [040] Figure 25 is a side view showing movement of the jaw support member between the open and closed positions.

Detailed Description of Preferred Embodiments

[041] Referring to the Figures, there is shown a jaw support 10 comprising a frame 12 and a jaw support member 14. The frame 12 is provided to engage with the upper body of a user and comprises a chest engaging member 16 and a neck support 18.

[042] The chest engaging member 16 is provided to engage with an upper portion of the chest of the user below the chin. The neck support 18 extends from the chest engaging member 16 and is provided to engage around a rear side of the neck of the user in order to hold the frame 12 in place in use.

[043] The chest engaging member 16 comprises a curved first elongate member 20 being generally U-shaped. The chest engaging member 16 is curved such that when opposed first and second ends 22 and 23 are located

on lateral opposed sides of the neck of the user, an intermediate portion 24 extends across an upper portion of the chest of the user such that the intermediate portion 24 rest generally on the collarbones.

[044] The first elongate member 20 comprises a relatively flat member and the first and second ends 22 and 23 thereof lie in generally parallel planes. When the chest engaging member 16 is in place during use, the first and second ends 22 and 23 lie generally in parallel vertical planes either side of the neck.

[045] The intermediate portion 24 of the first elongate member 20 is twisted relative to the first and second ends 22 and 23 thereof such that, in use, the intermediate portion 24 lies generally parallel to the surface of the chest of the user, as can be seen in Figure 10. The intermediate portion 24 can therefore rest comfortably on the collarbones of the user.

[046] The neck support 18 in the embodiment shown comprises first and second arms 26 and 27. The first arm 26 extends outwardly away from the first end 22 of the first elongate member 20 and the second arm 27 extends outwardly away from the second end 23 of the first elongate member 20. The first and second arms 26 and 27 comprise relatively flat curved members such that the first and second arms 26 and 27 curve around towards the rear of the neck of the user.

[047] The first elongate member 20 and the first and second arms 26 and 27 are preferably integrally formed from a resilient flexible material, such as a plastic material. Distal ends of the first and second arms 26 and 27 are separated by a gap 28. The flexible resilient nature of the first elongate member 20 and the first and second arms 26 and 27 allow the gap 28 to be widened by pulling apart the first and second ends 22 and 23 of the frame 12. The frame 12 may then be placed around the neck for use.

[048] The jaw support member 14 comprises a second elongate member 30 having a first end 32 pivotally secured to the first end 22 of the chest engaging member 16 and a second end 33 pivotally secured to the second end 23 of the chest engaging member 16. The second elongate member 30 also comprises a relatively flat member such that the first and second ends 32 and 33 lie in

parallel planes either side of the neck in use. The first end 32 of the second elongate member 30 is therefore located outside and adjacent the first end 22 of the first elongate member 20. The second end 33 of the second elongate member 30 is located outside and parallel to the second end 23 of the first elongate member 20.

[049] The contour of the second elongate member 30 corresponds to the contour of the first elongate member 20 such that the second elongate member 30 includes also a twisted intermediate portion 34. The second elongate member 30 is therefore locatable in a closed configuration (as shown in Figure 3) in which the surface of the second elongate member 30 is adjacent and parallel to the surface of the first elongate member 20 along the length thereof.

[050] The first and second ends 32 and 33 of the jaw support member 13 are rotatably mounted to the outer surfaces of the first and second ends 22 and 23 of the chest engaging member 16 such that the jaw support member 14 can rotate from the closed configuration to an open configuration (as shown in Figure 1). When rotating from the closed configuration to the open configuration, the intermediate portion 34 of the jaw support member 14 moves away from the intermediate portion 24 of the chest engaging member 16. The jaw support member 14 rotates about an axis passing between centres of the first and second ends 22 and 23 of the elongate member 20. As the jaw support member 14 moves to the open configuration, the intermediate portion 34 thereof therefore moves towards the chin of the user.

[051] A latching mechanism is provided between the first and second ends 32 and 33 of the jaw support member 14 and the first and second ends 22 and 23 of the chest engaging member 16. The latching mechanism is provided such that the jaw support member 14 may be retained in one or more positions relative to the chest engaging member 16.

[052] In the embodiment shown, first and second ends 22 and 23 of the chest engaging member 16 includes cylindrical protrusions 36 on outer surfaces thereof. The first and second ends 32 and 33 of the second elongate member 30 include cylindrical end portions 38 having closed outer ends such that the

cylindrical protrusions 36 are receivable in openings 40 defined by the cylindrical end portions 38 of the jaw support member 14. Arcuate spring clips 42 are provided within the cylindrical protrusions 36 to act against a movable lug 44 provided on the outer surface of the cylindrical protrusions 36. The inner surfaces of the openings 40 are provided with teeth 46 (as can be seen in Figure 7) into which the lugs 44 engage. The engagement of the lugs 44 with the teeth 46 provide a mechanism whereby the jaw support member 14 may be rotated to one of a plurality of positions in which the lug 44 engages between a pair of adjacent teeth and thereby resists movement away from said position. Application of a sufficient force will allow the jaw support member 14 to be moved between the closed configurations and multiple open configurations.

[053] A locking mechanism may also be provided in which movement of the jaw support member 14 relative to the frame 12 is prevented. An actuator may be provided to allow release of the jaw support member 14 relative to the frame 12 to adjust the position of the jaw support member 14 relative to the frame 12.

[054] In use, the jaw support 10 may be stored in the closed configuration. When required for use, the frame 12 is placed around the neck of the user as shown in Figures 9 to 12. The jaw support member 14 is then moved to the open configuration to be placed against the chin of the user when the user's jaw is in the open position. The intermediate portion 34 of the jaw support member 14 includes a recess 48 to receive the chin of the user for additional comfort. The user can then rest their jaw against the jaw support member 14, the force of which is transferred by the chest engaging member 16 to the upper chest of the user. Stress is thereby taken away from the muscles around the jaw while the user is undergoing a procedure.

[055] The jaw support 10 may be provided with a cover (not shown). The cover may comprise a disposable flexible plastic sheet formed into a shape such that it may be placed over the jaw support 10 in use. The plastic sheet may include elasticised edges such that it may be stretched over the jaw support 10 where it will engage with the jaw support 10 and remain in place. The jaw support 10 may therefore be used for multiple procedures by simply replacing the disposable cover.

[056] Figures 13 to 23 show a second embodiment of a jaw support 10 in accordance with the present invention. The jaw support 10 of Figures 13 to 23 is similar to the first embodiment and like reference numerals are used to denote like parts.

[057] The jaw support 10 includes the locking mechanism provided to secure the jaw support member 14 relative to the frame 12. The cylindrical protrusion 36 in this embodiment comprises a part cylindrical protrusion 36 defining arcuate gap 37. An inner cylindrical protrusion 47 is provided located inside the part cylindrical protrusion 36. The locking mechanism includes an actuator 48 comprising a ring 50 having a lever 52 extending therefrom. The ring 50 is located about the part cylindrical protrusion 36 and located in place when the cylindrical protrusion 36 is received in the opening 40 in the cylindrical end portion 38 such that the ring 50 can rotate about the part cylindrical protrusion 36.

[058] An arcuate protrusion 54 is provided on the ring 50 such that the arcuate protrusion 54 is received in the arcuate gap 37. The arcuate protrusion 54 is shorter than the arcuate length of the arcuate gap 37 such that the ring 50 can rotate between a first position (as shown in Figure 22) and a second position (as shown in Figure 23). An arcuate spring clip 42 is also provided which includes an end 45 provided to engage in teeth 46 provided around a portion of the inner surface of the cylindrical end portion 38.

When the ring 50 is rotated to the first position, the arcuate protrusion disengages from the arcuate spring clip 42 such that the end 45 moves outwardly as shown in Figure 22. The end 45 is shaped to move into engagement with the teeth 46 such that rotation of the cylindrical end portion 38 in a direction which would move the jaw support member 14 towards the frame 12 is prevented. The flexibility of the arcuate spring clip 42 however lets the end 42 ride over the teeth 46 when the jaw support member 14 moves in the opposition direction. The ring 50 may be rotated by the lever 52 to the second position (as shown in Figure 23) in which the arcuate spring clip 42 is disengaged from the teeth 46 to allow the jaw support member 14 to move back to the closed position.

[059] It will be readily apparent to persons skilled in the relevant arts that various modifications and improvements may be made to the foregoing embodiments, in addition to those already described, without departing from the basic inventive concepts of the present invention.

Claims

1. A jaw support comprising:
a chest engaging member provided to rest on an upper area of the chest of a user below the jaw;
a neck support extending from the chest engaging member around a rear side of the neck of the user; and
a jaw support member connected to the chest engaging member;
wherein the jaw support member is pivotable between a first position, in which the jaw support member is adjacent the chest engaging portion, and a second position, in which the jaw support member the user may rest their chin on the jaw support member.
2. A jaw support in accordance with claim 1, wherein the chest engaging member comprises a first elongate member being generally U-shaped and the jaw support member comprises a second elongate member being generally U-shaped.
3. A jaw support in accordance with claim 2, wherein first and second ends of the second elongate member are rotatably mounted to respective first and second ends of the first elongate member such that the second elongate member is rotatable about an axis passing through the first and second ends of the first elongate member.
4. A jaw support in accordance with claim 3, wherein the first and second elongate members comprise flat elongate members having the same shape such that, in the closed configuration, a surface of the second elongate member is adjacent and parallel to the a surface of the first elongate member along the lengths thereof.
5. A jaw support in accordance with claim 4, the first and second ends of the first and second elongate members lie in parallel planes and intermediate portions of the first and second elongate members are twisted relative to the

first and second ends such that, in use, when the first and second ends are adjacent sides of the neck, the intermediate portions lie parallel to the surface of the chest of the user.

6. A jaw support in accordance with any one of the preceding claims, wherein the neck support comprises first and second arms extending outwardly away from first and second ends of the first elongate member respectively.

7. A jaw support in accordance with claim 6, wherein the first and second arms comprise relatively flat curved members such that the first and second arms curve around towards the rear of the neck of the user.

8. A jaw support in accordance with claim 7, wherein the first elongate member and the first and second arms are integrally formed from a resilient flexible material.

9. A jaw support in accordance with claim 8, wherein distal ends of the first and second arms are separated by a gap.

10. A jaw support in accordance with claim 9, wherein the intermediate portion of the jaw support member includes a recess to receive the chin of the user.

11. A jaw support in accordance with any one of the preceding claims, wherein a latching mechanism is provided between the first and second ends of the jaw support member and the first and second ends of the chest engaging member such that the jaw support member may be retained in one or more positions relative to the chest engaging member.

Freedom Physiotherapy WA Pty Ltd
By its Patent Attorneys
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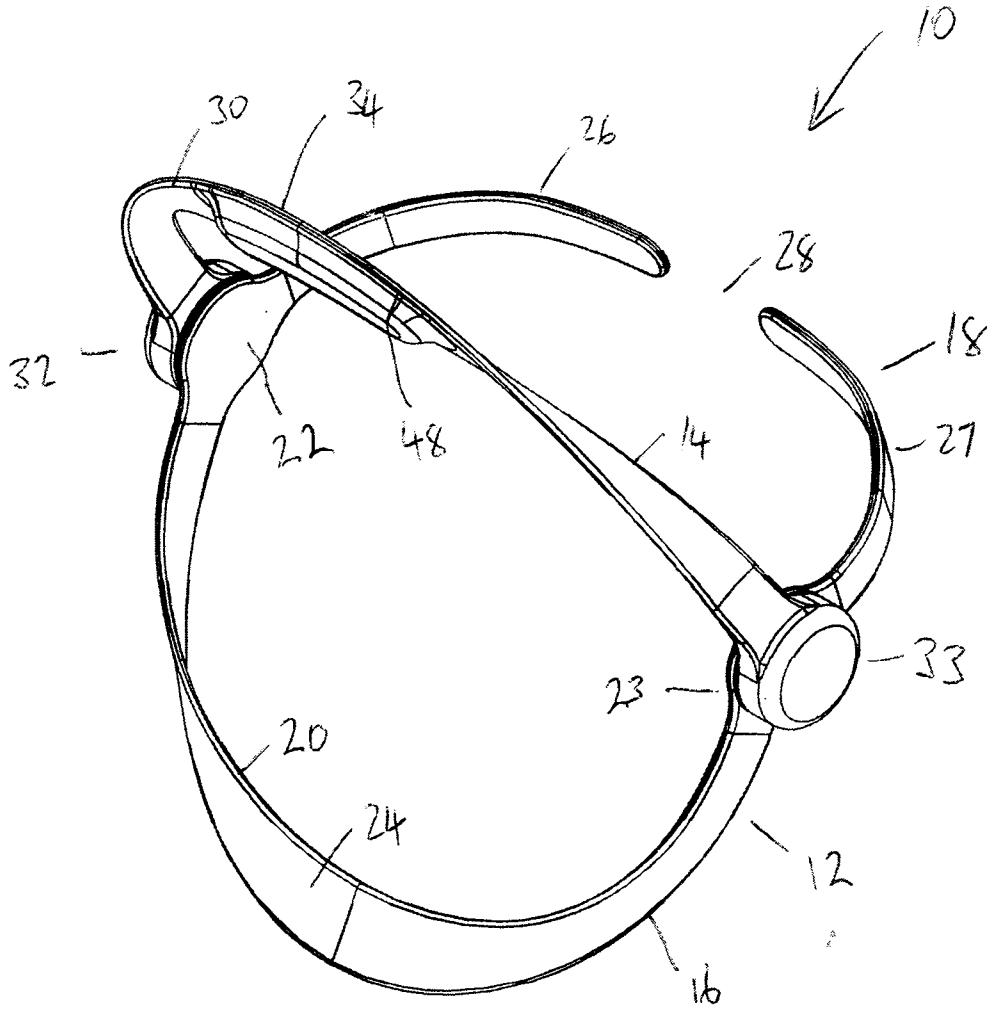


Fig 1

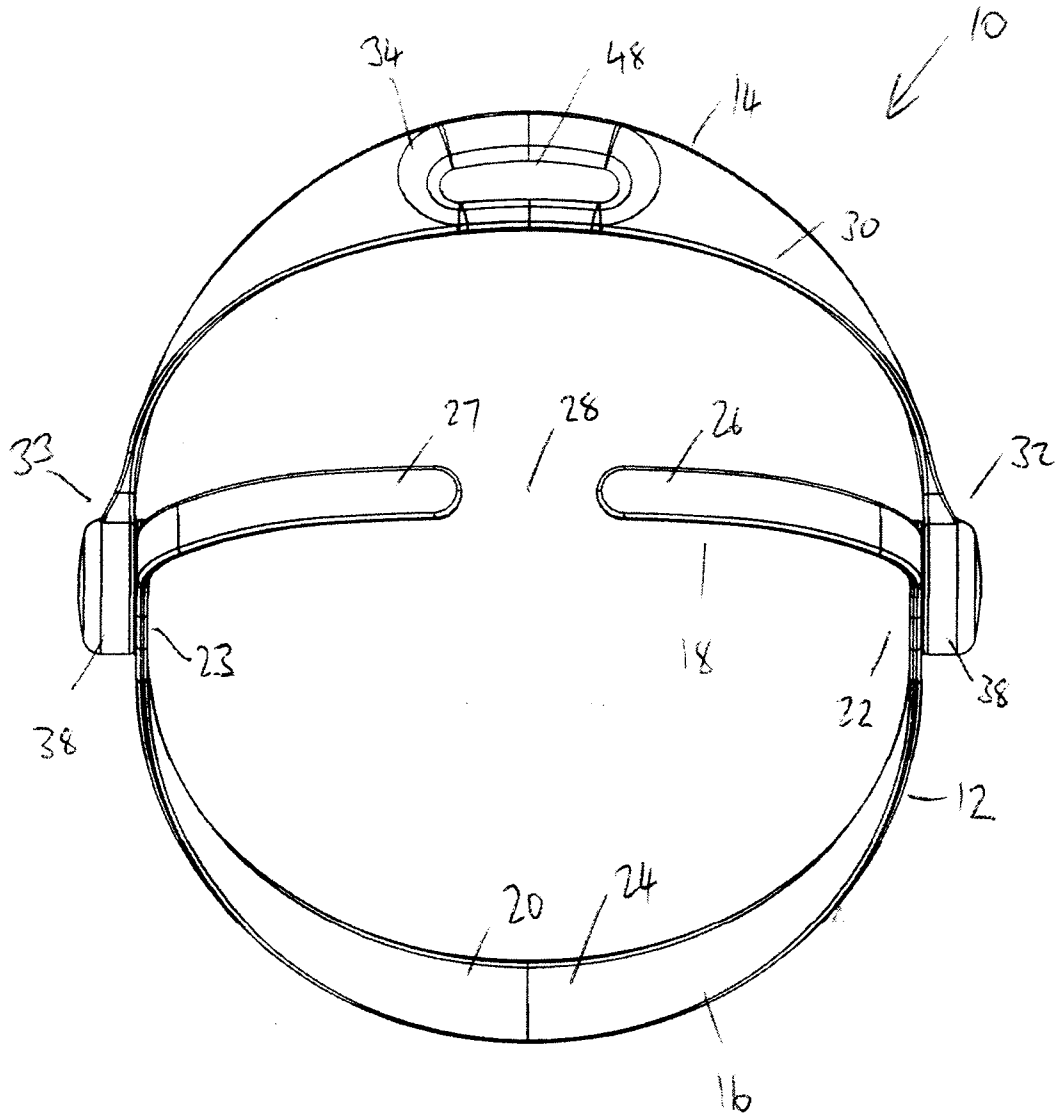


Fig 2

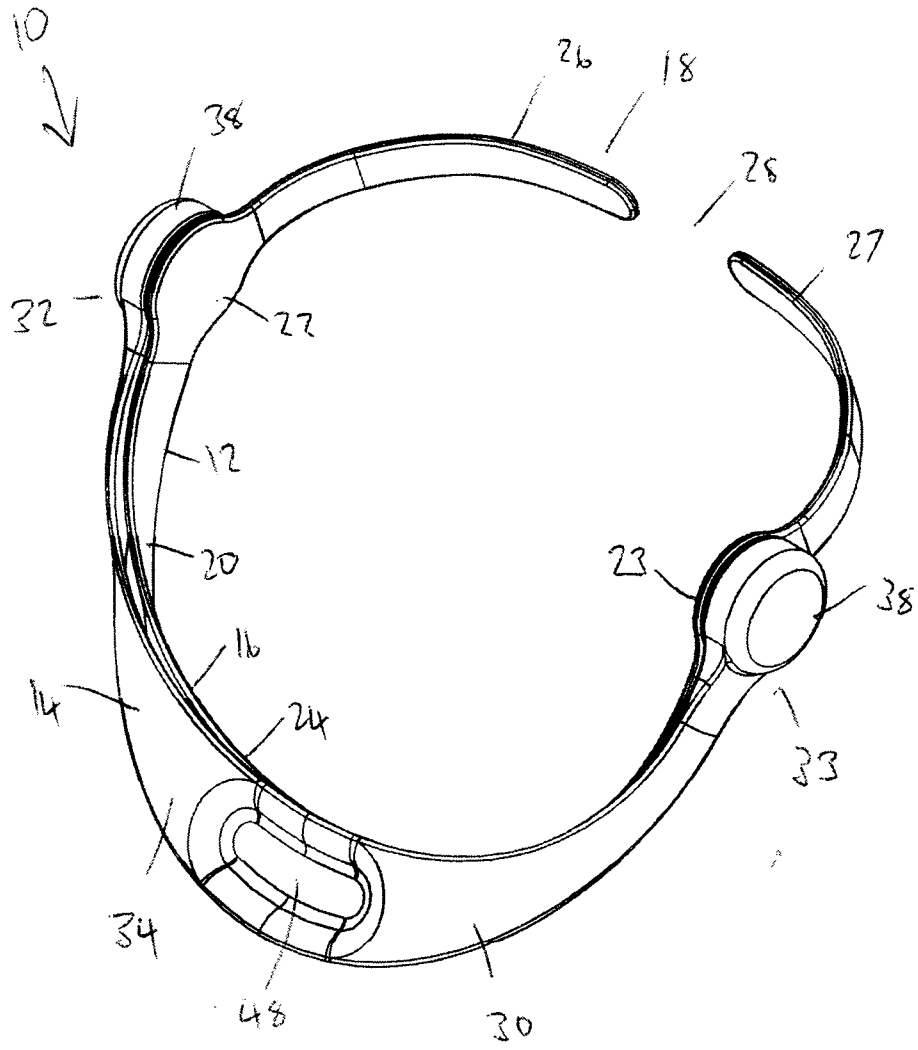


Fig 3

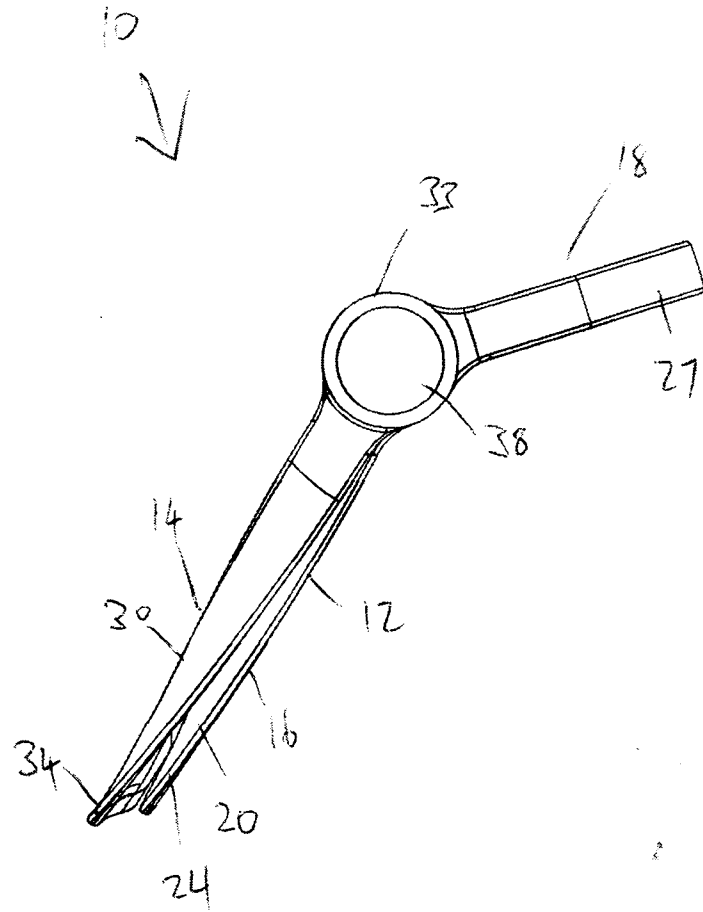


Fig 4

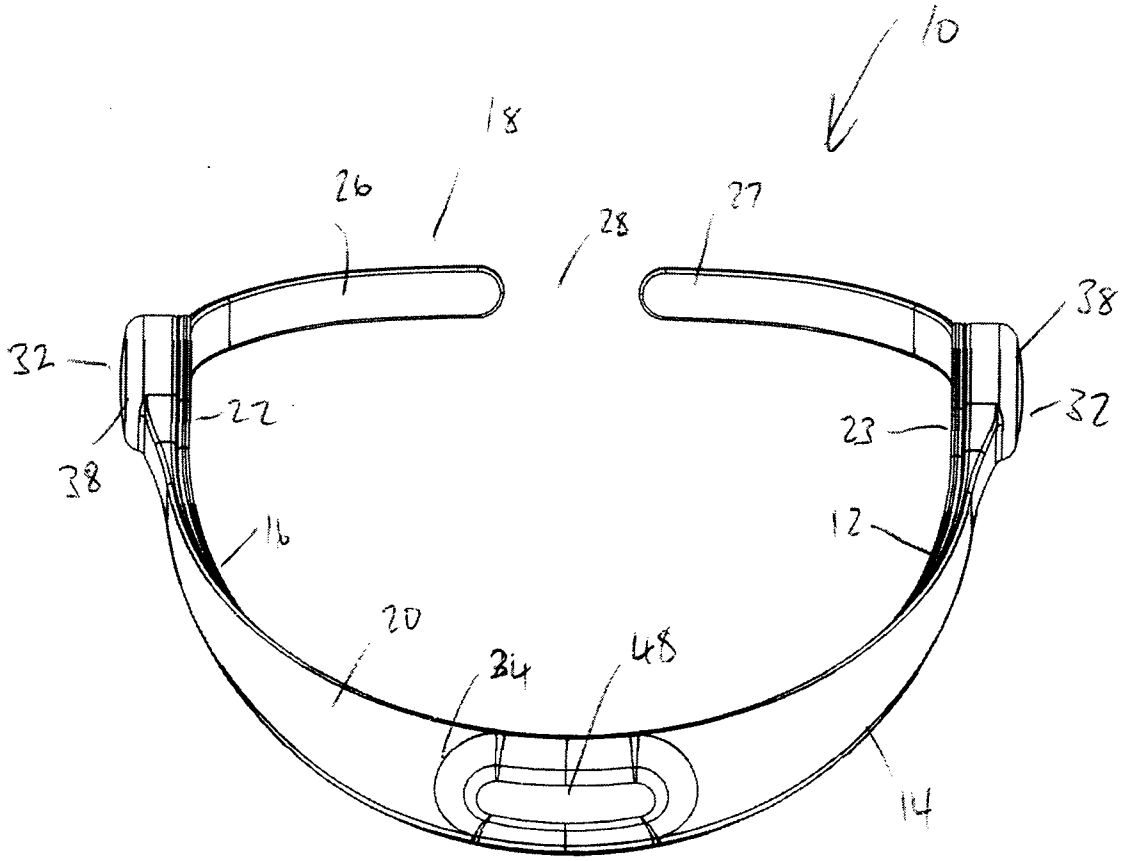


Fig 5

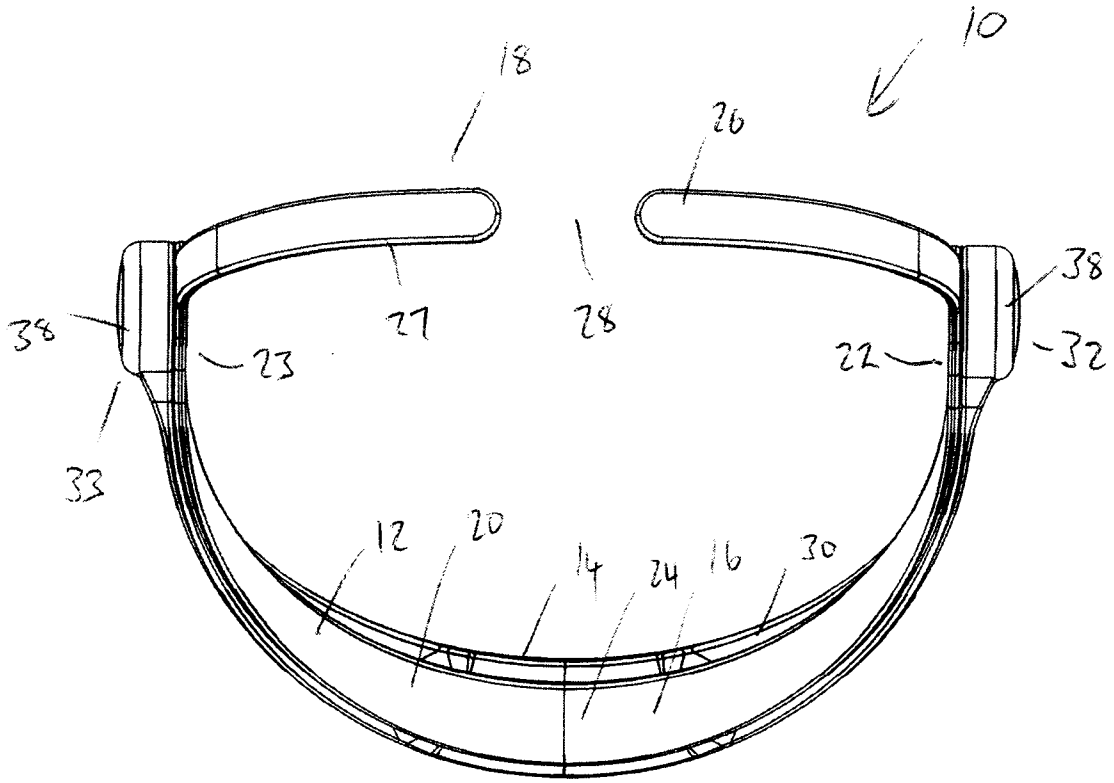


Fig 6

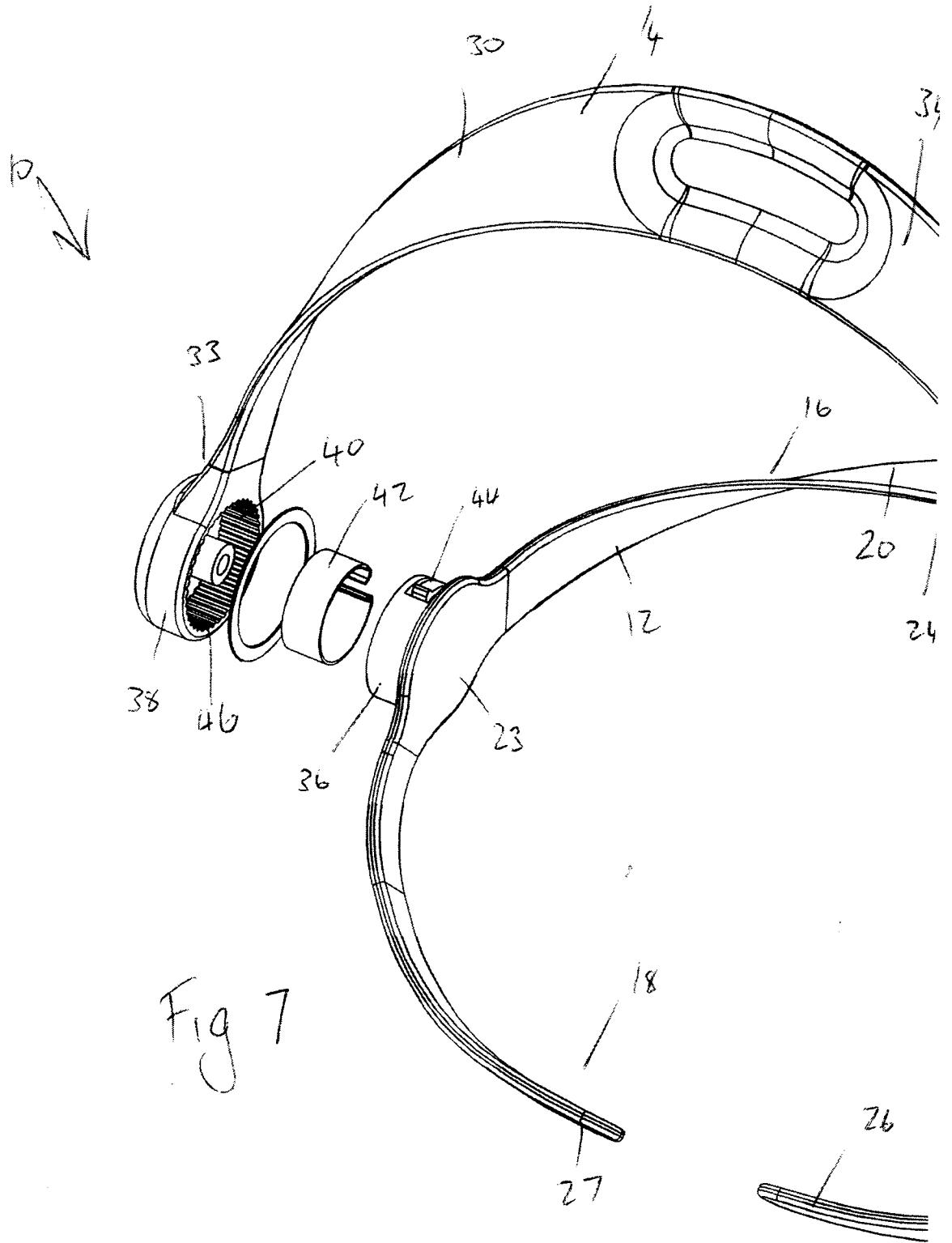


Fig 7

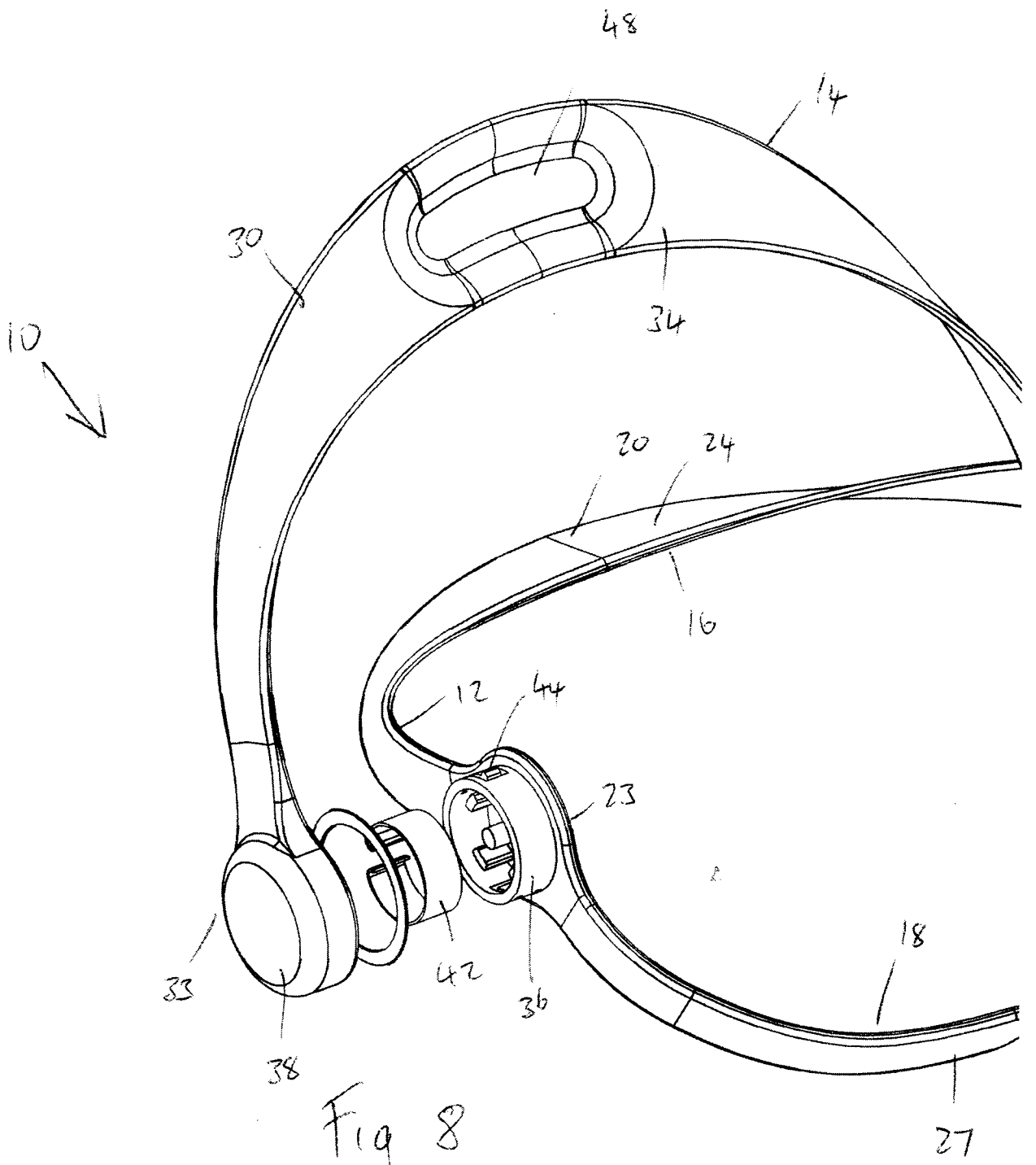


Fig 8

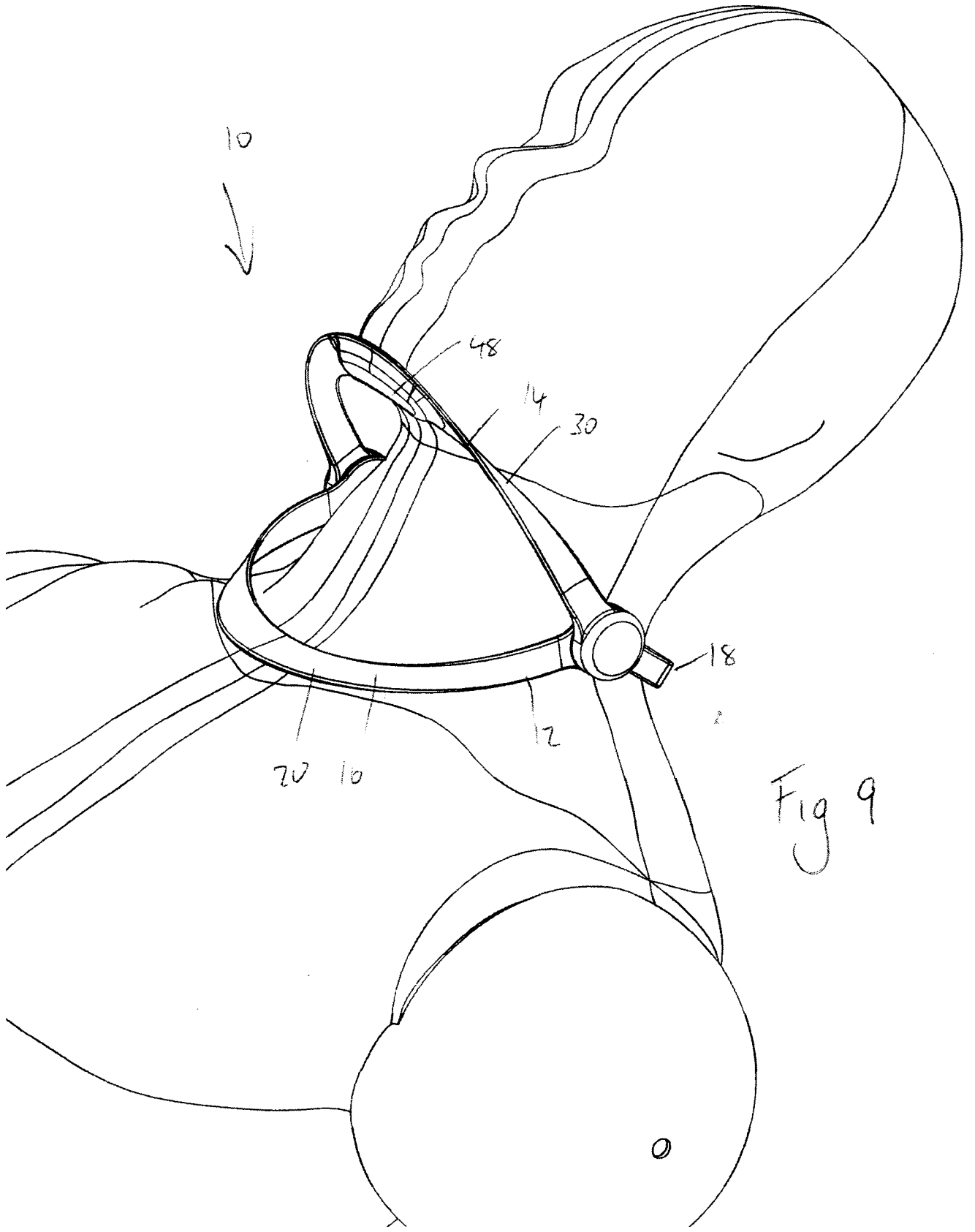


Fig 9

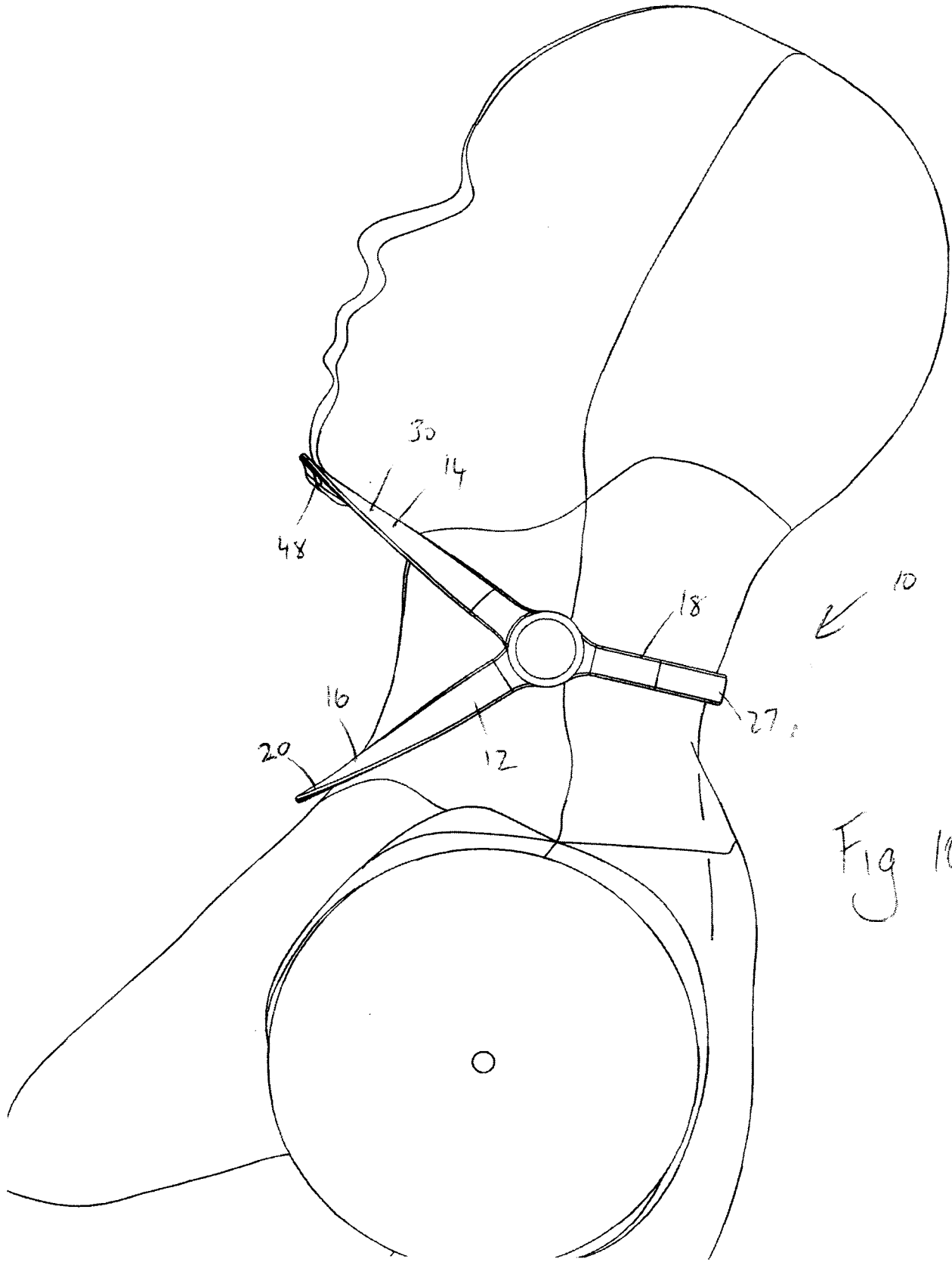


Fig 10

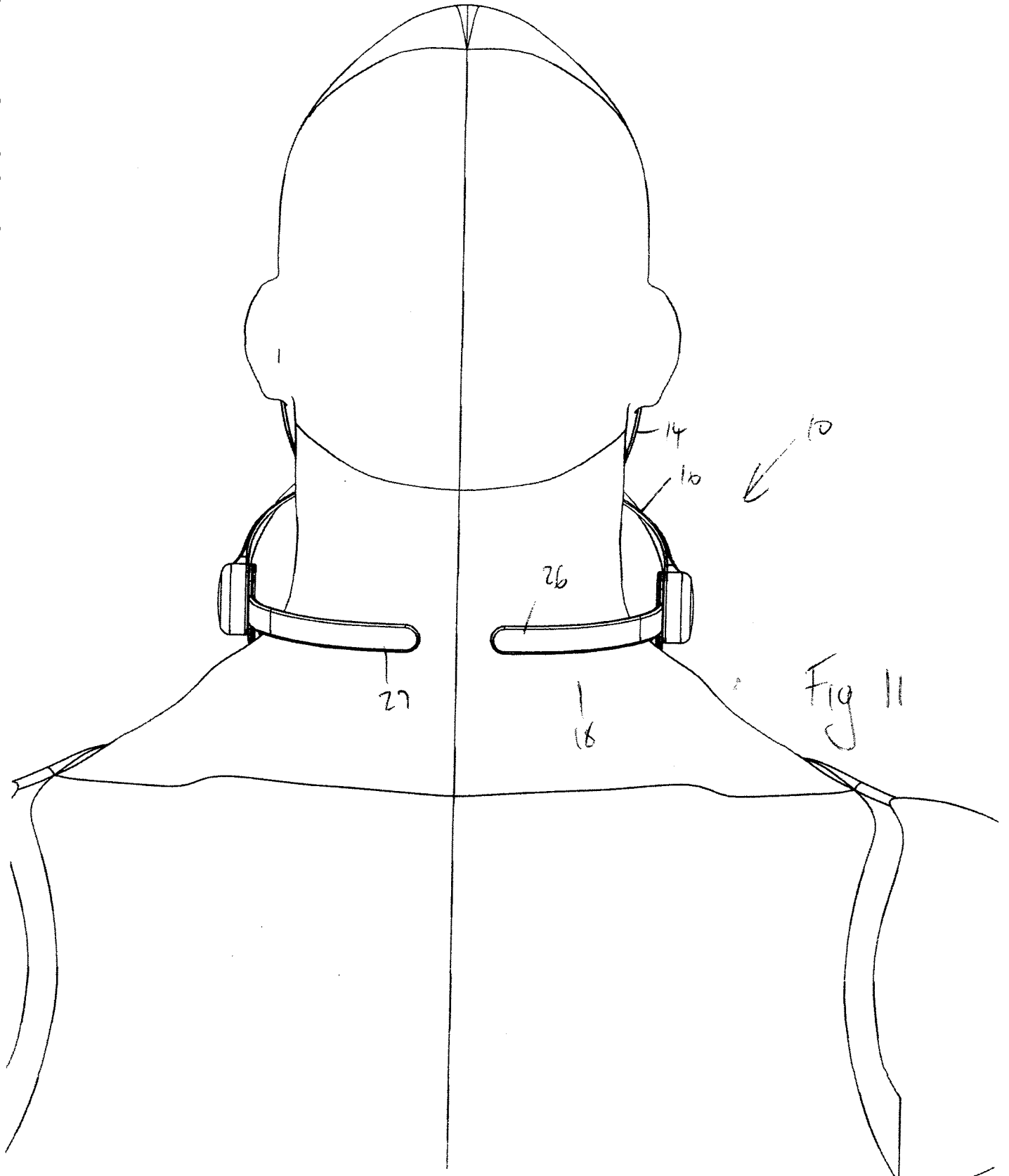


Fig 11

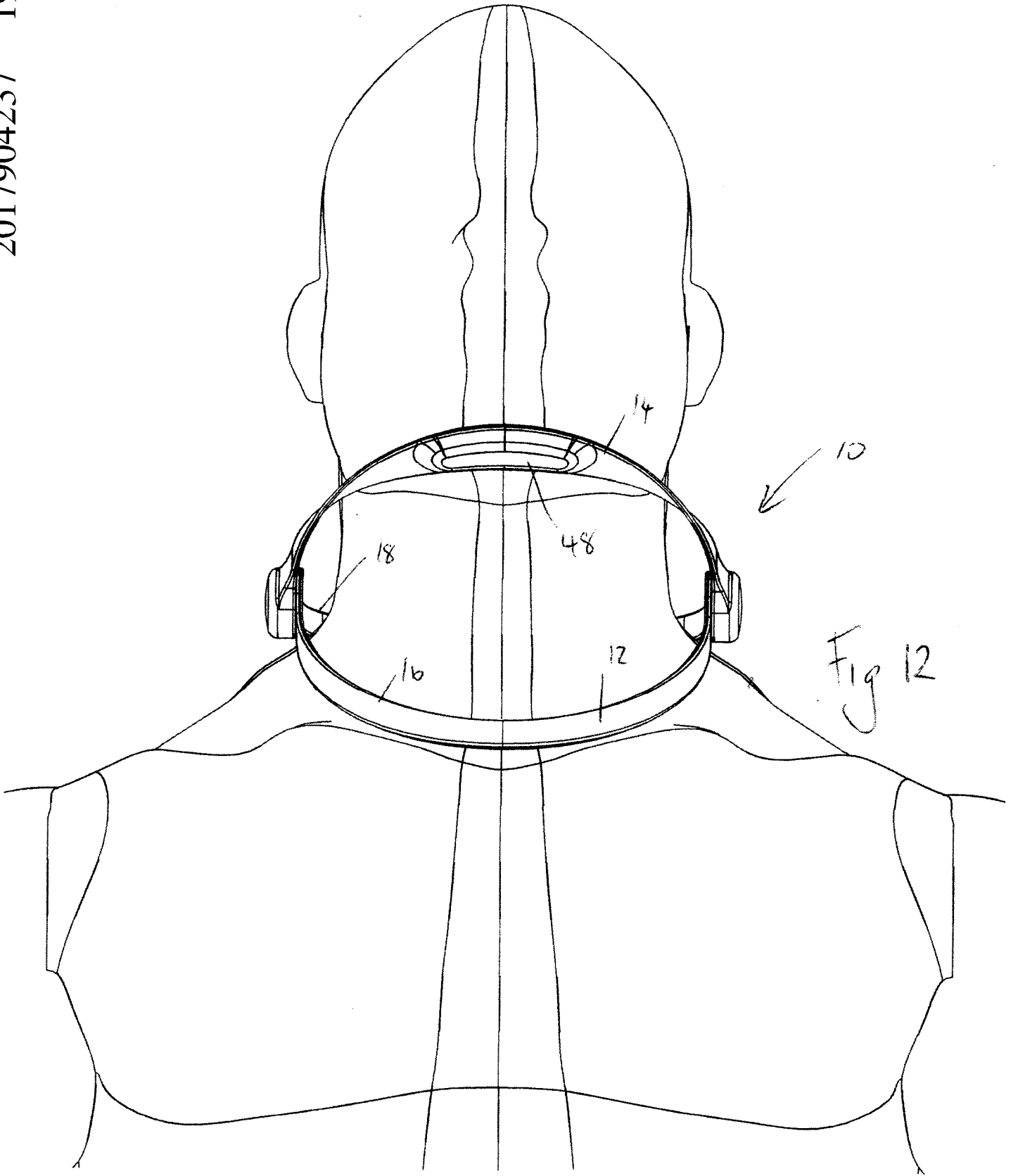


Fig 12

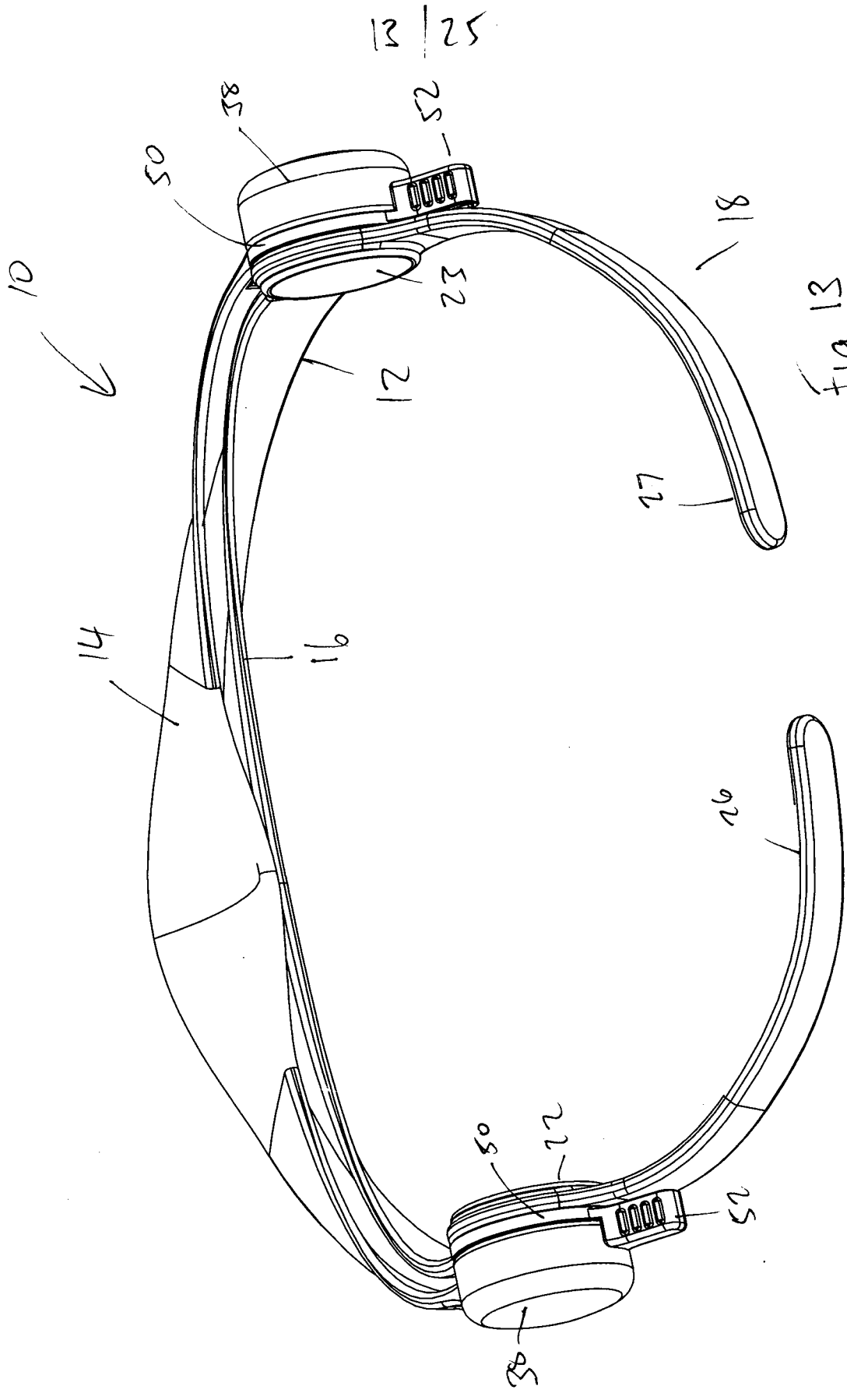


fig 13

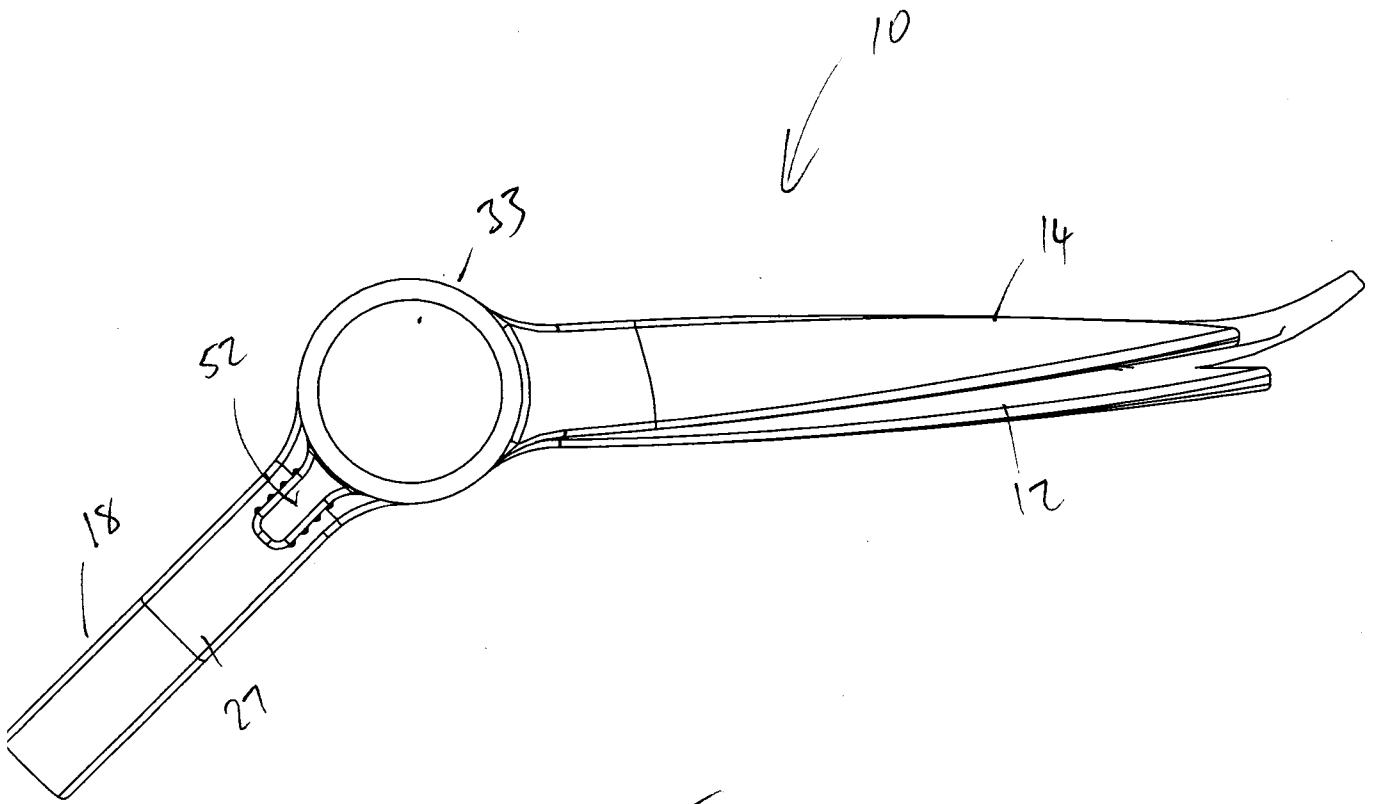
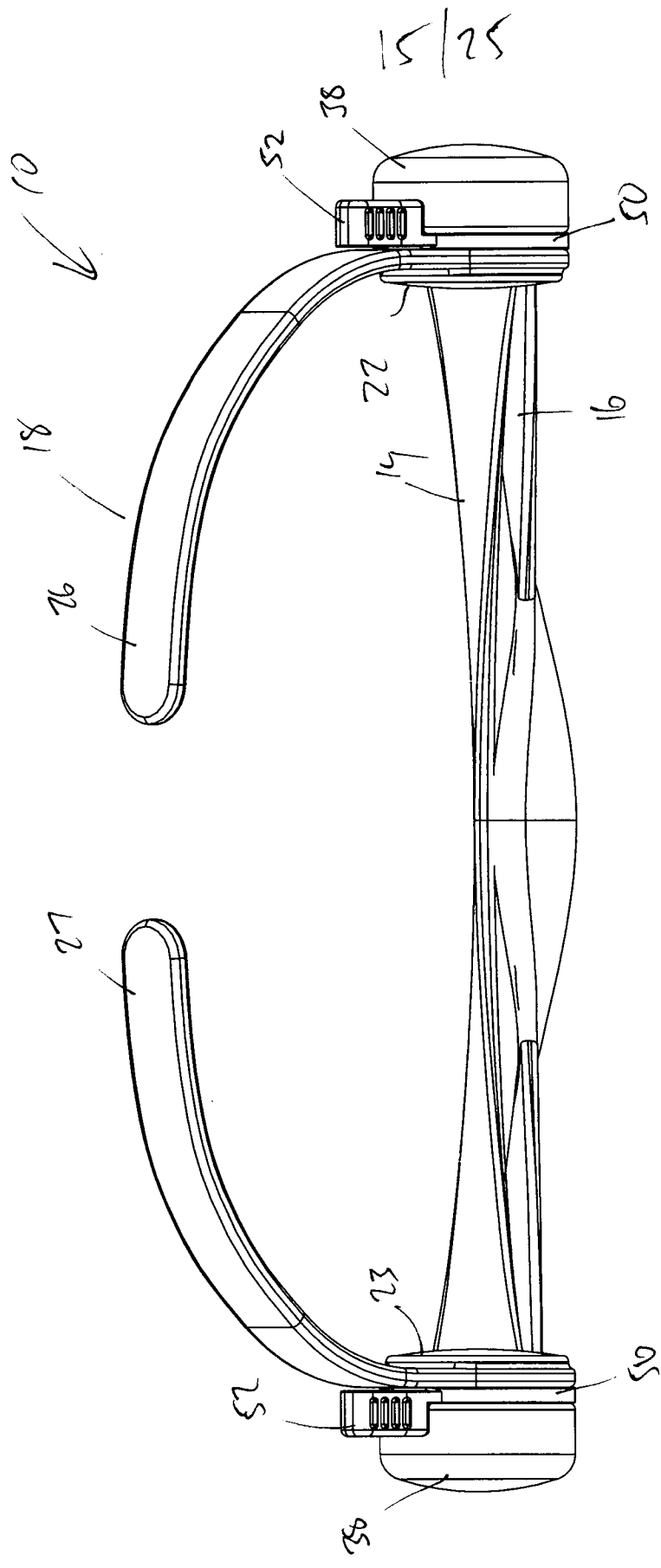


Fig 14



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Fig 15

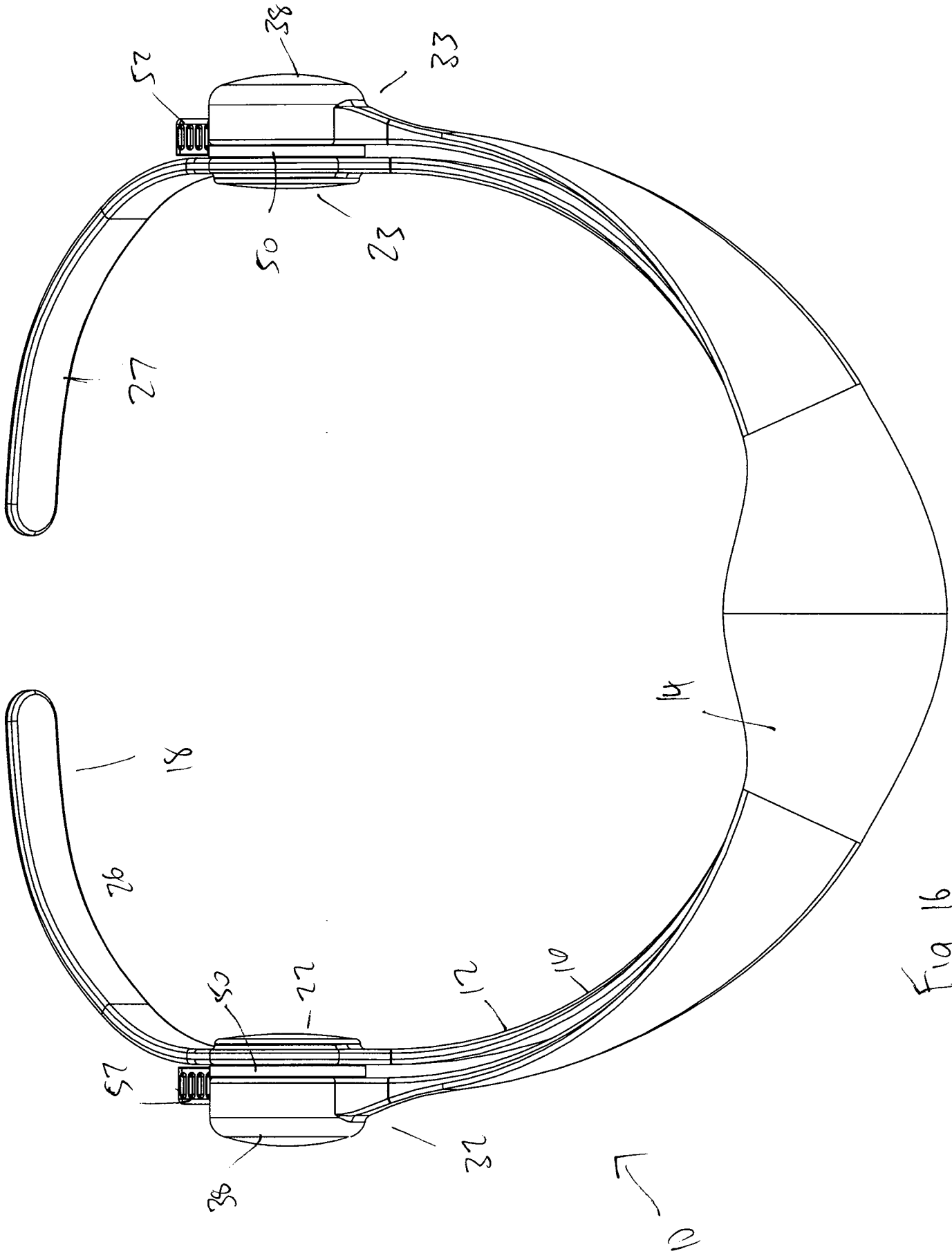


Fig 16

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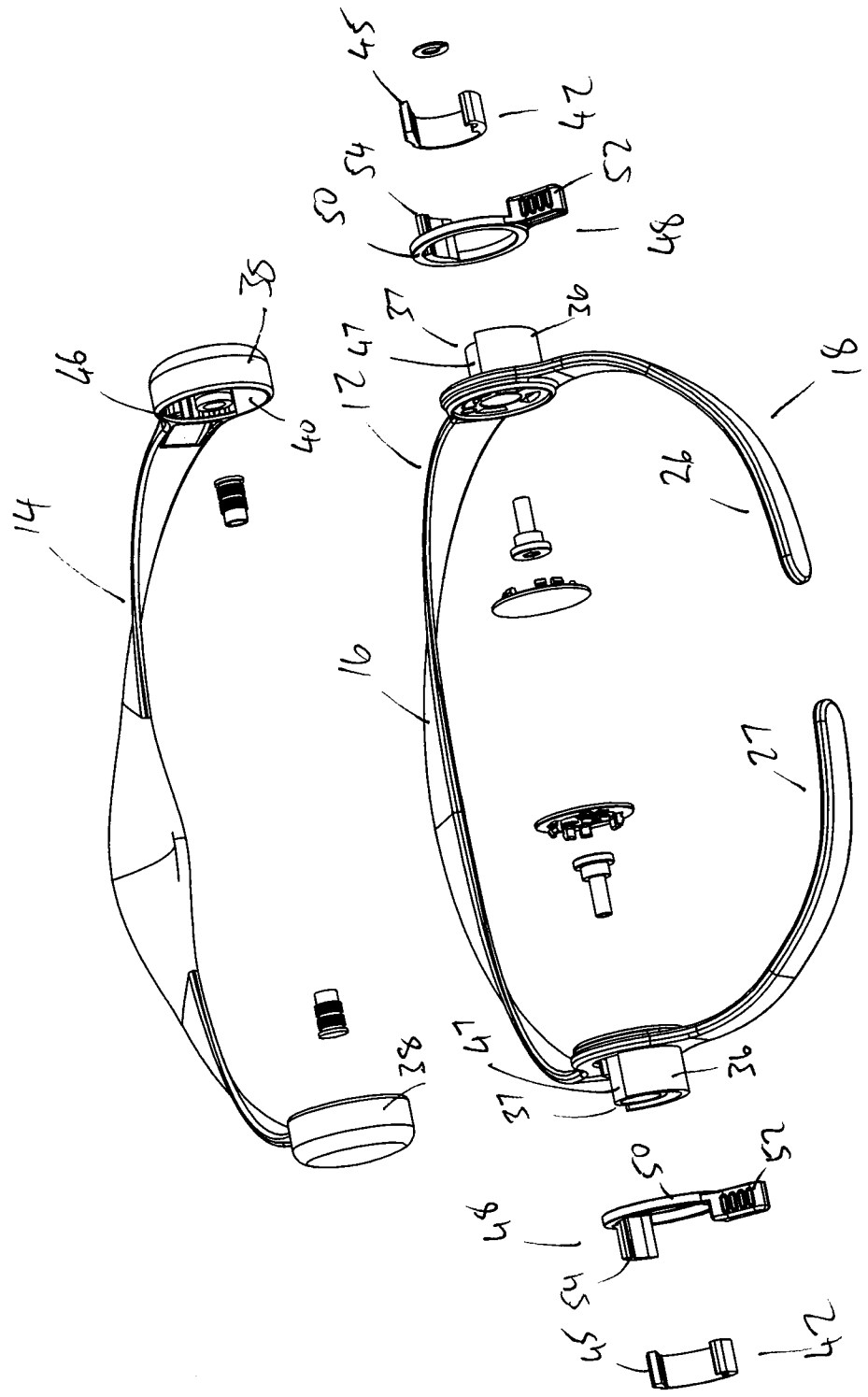


Fig 17

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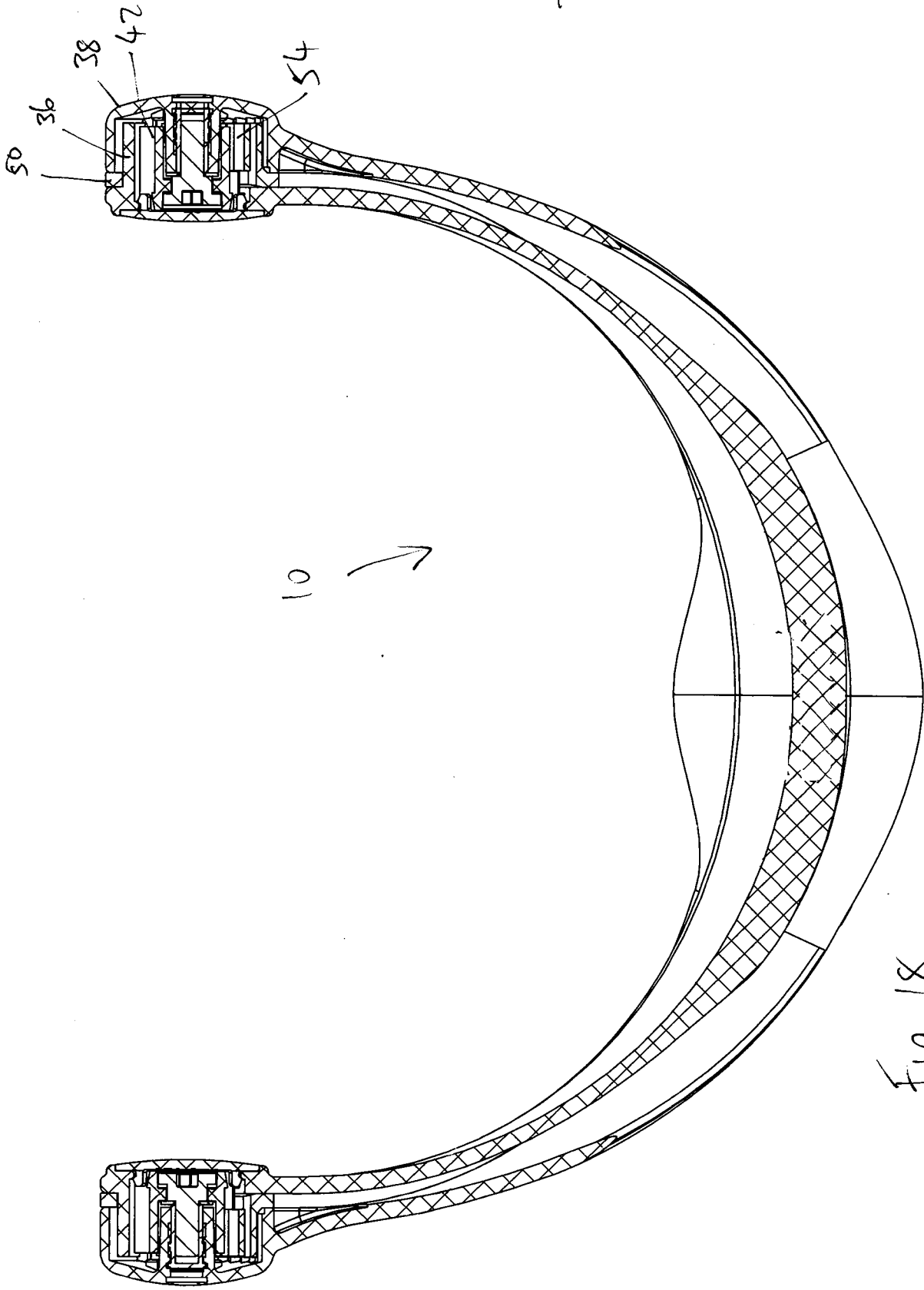


Fig 18

SECTION A-A

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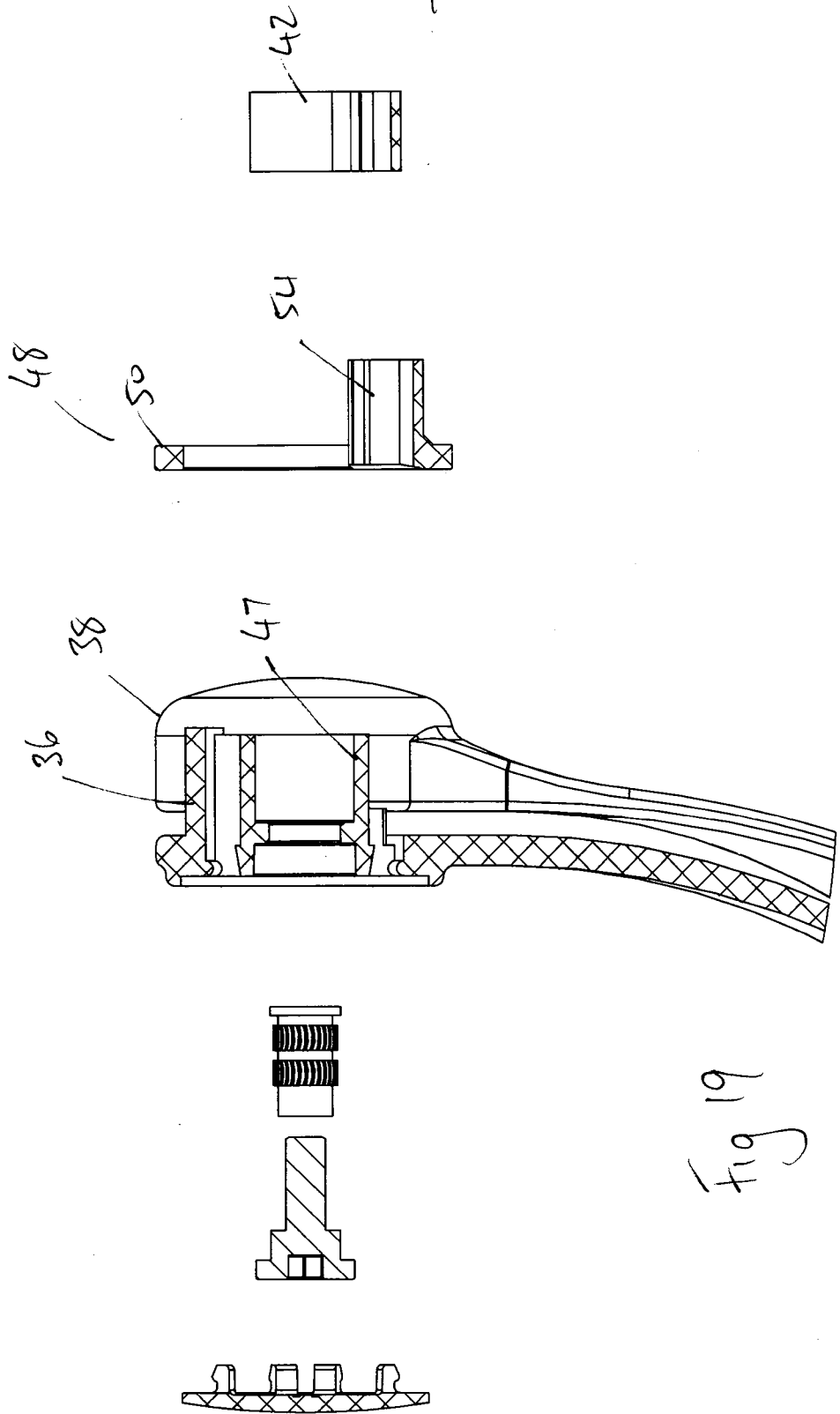


Fig 19

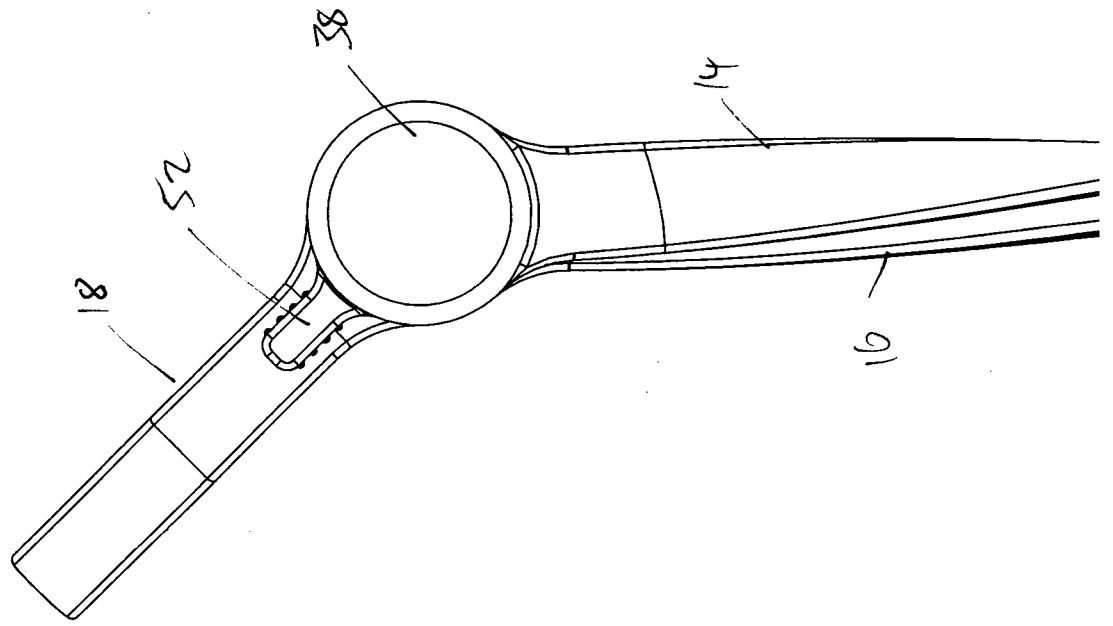


Fig 20

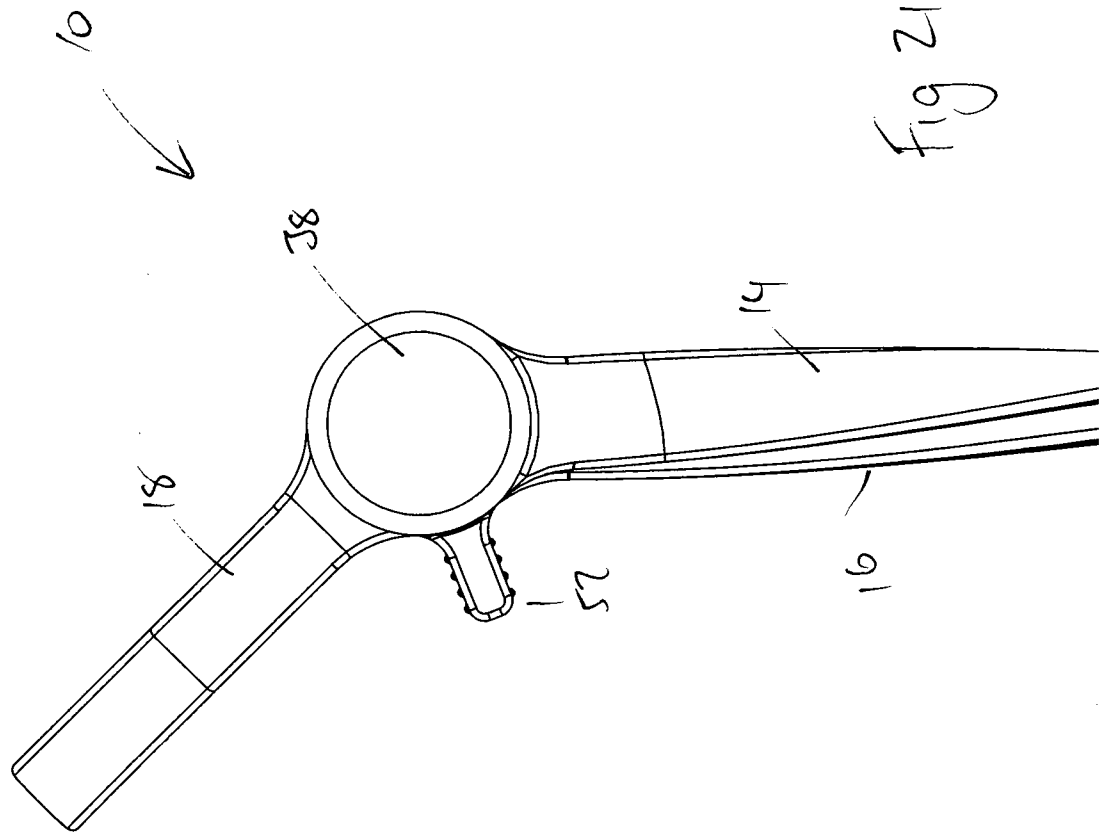


Fig 21

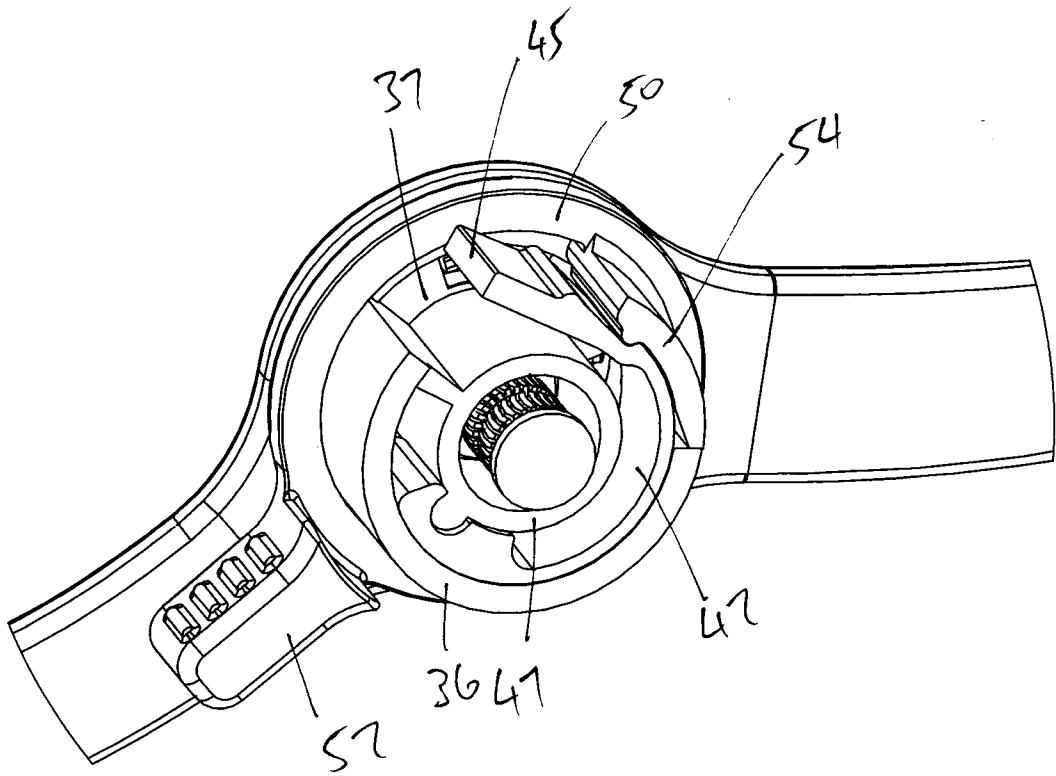


Fig 22

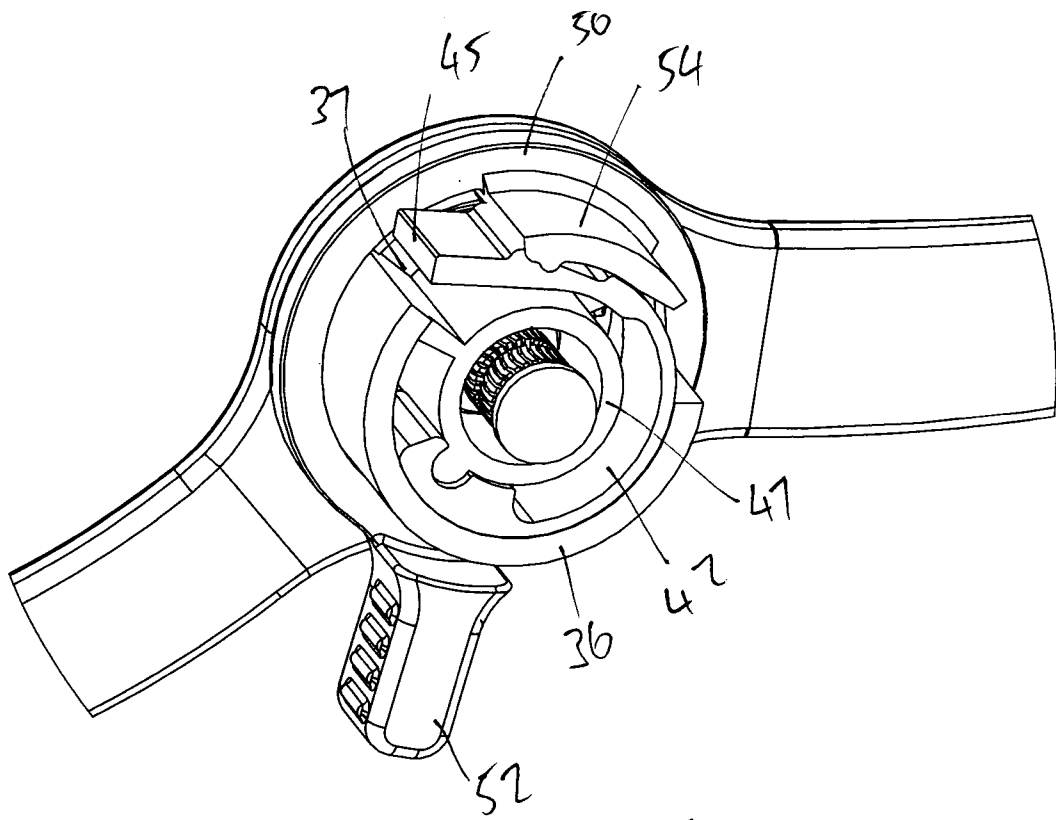


Fig 23

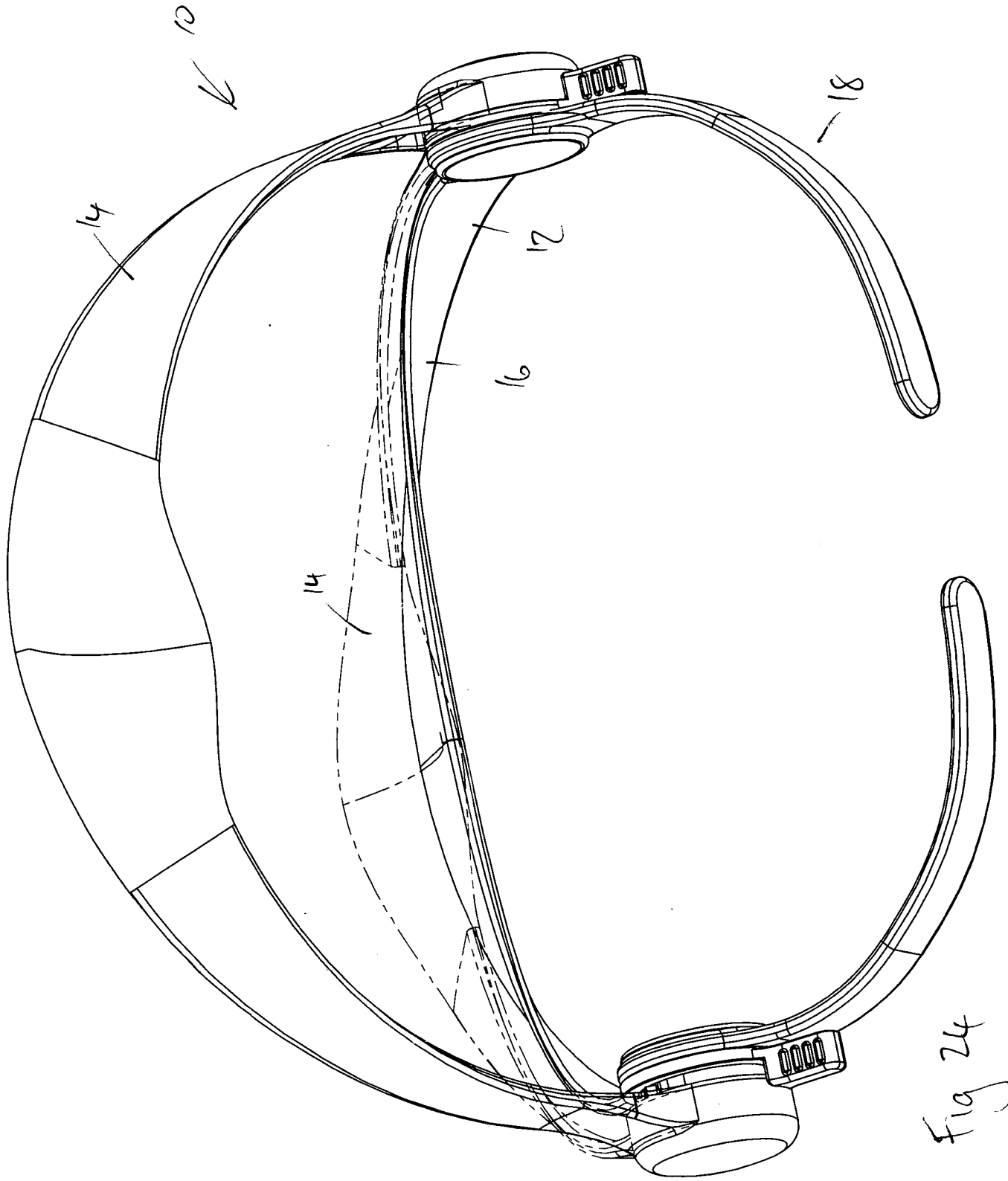


Fig 24

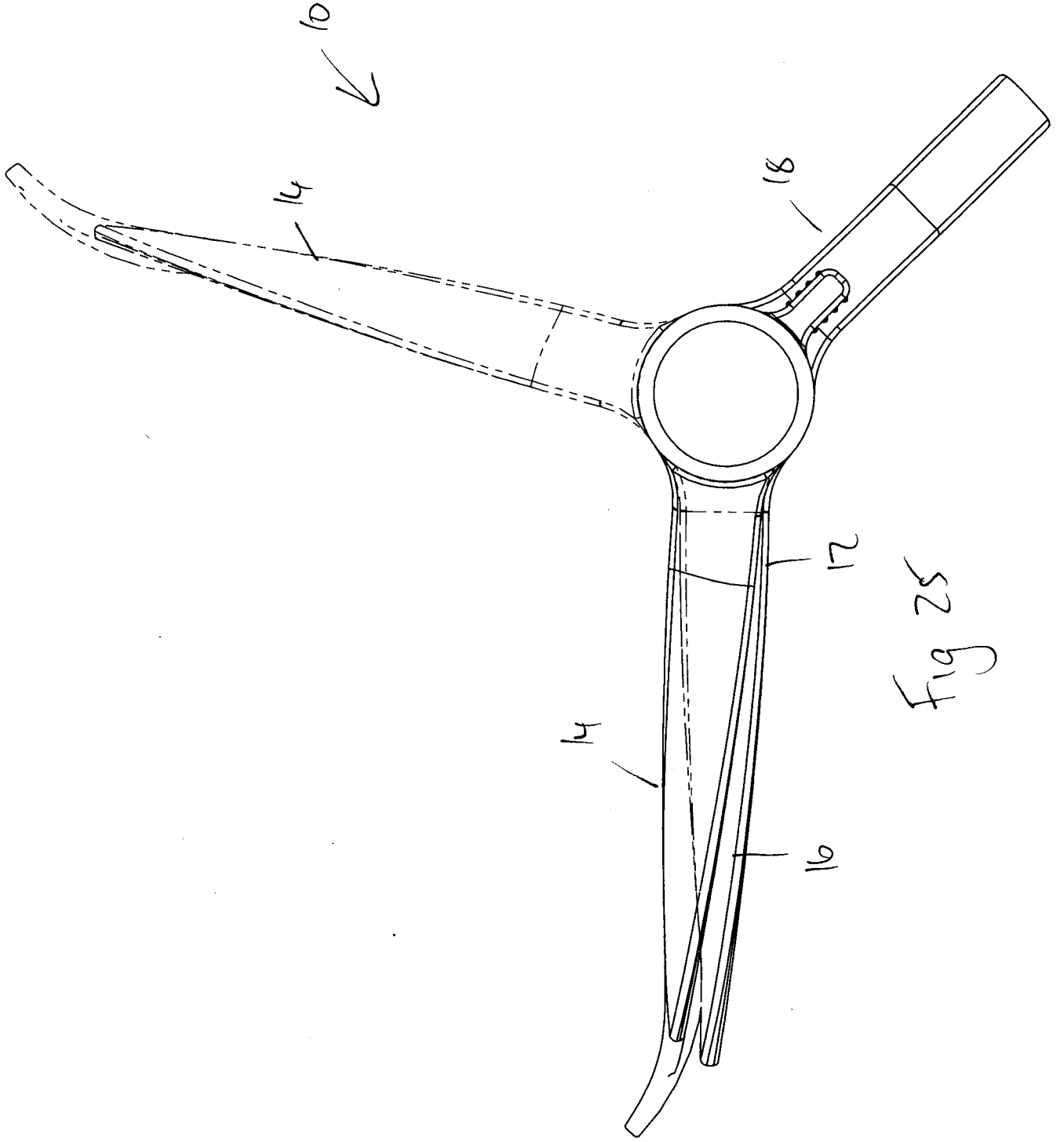


Fig 25