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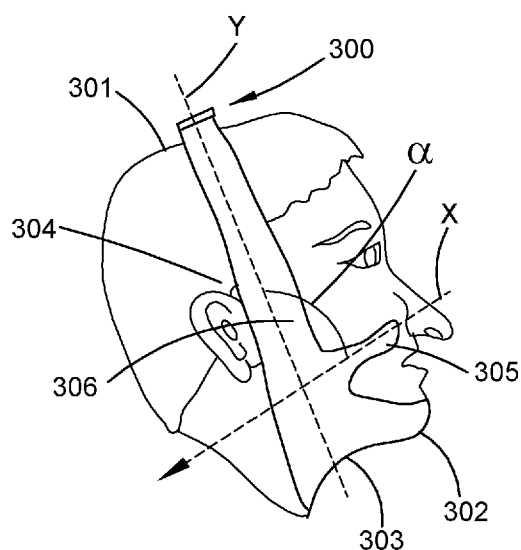


FIGURE 2

(57) Abstract: Described is a prosthesis adapted to contour a wearer's face. The prosthesis includes a first portion adapted to be positioned on the face to apply a pulling force to a muscle of the face for expanding the wearer's nasal airway, and a second portion adapted to contour the face at least one of a wearer's submental, submandibular and lateral temporal region, the second portion supporting the first portion for application of the force.

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Facial Contouring Prosthesis

Field of Invention

The present invention relates to a method of using a prosthesis to contour the face and simultaneously expand the nasal airway to improve breathing, and to a prosthesis for those functions.

Background

Kybella treatment is known to dissolve fats around the submental, submandibular and lateral temporal region. There is need to contour the face for loose skin after the fats are dissolved by the deoxycholic acid (i.e. Kybella).

Prior art methods of achieving said goals include manual stimulation, topical chemical treatments, electric stimulation, as well as cosmetic surgery. The above methods are mostly invasive, inconvenient and ineffective. They rely on expensive services from health and cosmetology professionals. In addition, bands available in the market are solely for facial tightening and do not address overweight patients with nasal airway congestion.

People who are overweight or obese results have a lot of excess fat. The fatty tissue must be stored in the body somewhere, and the chin is a common storage place for such fats. As the fat weighs down the skin under the chin, it can cause a wrinkle that gives the appearance of having a second, lower chin (i.e. double chin) especially in the submandibular region. Nasal obstruction in overweight subjects has frequently been associated with sleep-disorders, breathing difficulty as and as a potential etiological factor for those and other conditions. Nasal obstruction results in changes in airflow velocity and resistance. Experimentally produced nasal obstruction increases resistance and leads to sleep-disordered breathing events, including apnoea, hypopnea, and snoring.

Clinical research examining the correlation between nasal obstruction and sleep-disordered breathing is limited, especially in patients with conditions that increase nasal resistance, such as rhinitis and sinusitis. Overweight and central ponderosity, aging, male sex, and severe craniofacial abnormalities such as acromegaly have been identified as strong risk factors for sleep-disordered breathing. Hypothesized but untested risk factors include problems originating in the nose, including physical obstruction, allergic rhinitis, and chronic sinusitis.

Existing studies are mainly focused on understanding causal mechanisms for the above factors. Bands that are normally used to expand the nasal airway are claimed to be affixed to the cheek bone through adhesive near the facial area of nose for the expansion. However, the related concept is incorrect. In addition, the existing methods for improving breathing is too complex for a layperson to use.

It would be desirable to address or alleviate at least one of the above difficulties.

Summary

Disclosed herein is a prosthesis adapted to contour a wearer's face, the prosthesis comprising:

- a first portion adapted to be positioned on the face to apply a pulling force to a muscle of the face for expanding the wearer's nasal airway; and
- a second portion adapted to contour the face at at least one of a wearer's submental, submandibular and lateral temporal region, the second portion supporting the first portion for application of the force.

The first portion may be positioned, in use, on a nasolabial region of the face, to pull the muscle of the face towards one or both ears.

The muscle of the face may be a levator labii superioris muscle.

The first portion may comprise one or more adhesive strips for adhering to skin of the face.

At least one of the first portion and the second portion is stretchable.

The prosthesis may be made from one or more of waterproof material, soft woven or non-woven material. The prosthesis may be made from memory material having a first shape and a second, deformed shape. One or both of the first portion and the second portion is adapted to receive an insert formed from shape memory material. The prosthesis may be made from at least one of Gore-Tex, stretchable Nylon, PTFE, soft neoprene, SMP, copolymers, terpolymers, combinations and mixtures.

The second portion may comprise one or more adjustment mechanisms configured to enable a length of the second portion to be adjusted.

Disclosed herein is also a method of contouring a wearer's face, comprising:

- applying a first portion of a prosthesis to the face in a position to apply a pulling force to a muscle of the face for expanding the wearer's nasal airway; and

- applying a second portion of the prosthesis at a position to contour at least one of a wearer's submental, submandibular and lateral temporal region, the second portion supporting the first portion for application of the force.

The first portion and second portion may be applied sequentially, with:

- with the first portion applied first, wherein applying the second portion of the prosthesis comprises applying the second portion so that a force applied by the second portion resists movement of the first portion towards the wearer's nasal airway; or

with the second portion applied first, wherein applying the first portion of the prosthesis comprises applying the first portion so that a force applied by the first portion resists movement of the second portion away from the wearer's nasal airway.

The method may comprise pulling the wearer's levator labii superioris muscle towards the wearer's ears on one or two cheeks at the wearer's nasolabial region.

The method may comprise pulling one or more adhesive strips of the prosthesis to adhere the wearer's facial skin whereby the wearer's levator labii superioris muscle is pulled to expand the wearer's nasal airway.

The method may further comprise stretching the prosthesis and attaching it to the face in a stretch condition.

The method may comprise applying the prosthesis to the face in the second shape.

The method may further comprise operating at least one adjustment mechanism to change a length of the second portion.

Description of Figures

Embodiments of the present invention will now be described, by way of non-limiting example only, with reference to the accompanying drawings in which:

Figure 1 illustrates submental and submandibular regions;

Figure 2 is a schematic illustration of a prosthesis adapted to contour a wearer's face;

Figure 3 is a schematic illustration of a prosthesis comprising adhesive strips, wings for nasal cavity expansion, and buckles;

Figure 4 is a schematic illustration of a prosthesis not fixed in the ears;
Figure 5 is a schematic illustration of a prosthesis fixed in the ears;
Figure 6 illustrates deviated septum of a wearer's nose;
Figure 7 is a schematic illustration of a prosthesis with one nasal expander;
and
Figure 8 illustrates a method for applying a prosthesis as shown in Figure 2.

Detailed Description

The prostheses described herein endeavour to provide contouring around the chin and cheeks of a wearer, while also helping maintain the patency of the nasal passage. The portion of the prosthesis for maintaining the nasal passage depends from and is supported by a portion that contours the face. The force that can thus be applied to maintain the clarity of the nasal passage is considerably greater than for other devices. Particularly during weight loss, this can enable the prosthesis to contribute to the proper formation of nasal airways concurrently with contouring the face, and thereby may avoid the impact that facial contouring has on nasal passage clarity, and vice versa, when the two are corrected separately.

The present invention relates to a prosthesis (e.g. prosthesis 300 of Figure 2) adapted to contour a wearer's face. Said prosthesis comprises a first portion (305) adapted to be positioned on the face to apply a pulling force to a muscle of the face for expanding the wearer's nasal airway, and a second portion (306) adapted to contour the face at at least one of a wearer's submental, submandibular and lateral temporal region. For reasons discussed above, the second portion supports the first portion for application of the force. This creates synergy between the first portion and second portion as force applied by the first portion is maintained by the second portion, thereby preventing the first portion from creeping towards the nose that would otherwise lessen the force applied by the first portion to the face. Similarly, the first portion helps maintain a position of the

second portion at a location where the first portion and second portion meet. In particular, the force applied by the first portion to the wearer's face (along line of action X), and the force applied by the second portion to the wearer's submental, submandibular and/or lateral temporal region (along line of action Y) are at an angle α to each other (in the example shown, they are roughly perpendicular). This means the first portion can act as anchor to maintain a lateral position (to the side) of the second portion with respect to the force applied by the second portion. This similarly means the second portion can act as anchor to maintain a lateral position (to the side) of the first portion with respect to the force applied by the first portion. The proposed prosthesis can be used to improve the appearance of the submental, submandibular and lateral temporal region of the face while expanding the nasal airway to improve breathing.

The present invention also relates to a method 900 of contouring a wearer's face, as shown in Figure 8. The method 900 comprises, step 902: applying a first portion of a prosthesis to the face in a position to apply a pulling force to a muscle of the face for expanding the wearer's nasal airway; and step 904: applying a second portion of the prosthesis at a position to contour at least one of a wearer's submental, submandibular and lateral temporal region, the second portion supporting the first portion for application of the force. Step 902 and 904 can be performed in any order, or concurrently. If steps 902 and 904 are performed sequentially, with step 902 performed first, step 904 may involve applying the second portion of the prosthesis so that a force applied by the second portion resists movement of the first portion towards the wearer's nasal airway. Conversely, if steps 902 and 904 are performed sequentially, with step 904 performed first, step 902 may involve applying the first portion of the prosthesis so that a force applied by the first portion resists movement of the second portion rearwardly or away from the wearer's nasal airway.

The proposed method is simple for a layperson to use to improve breathing by expanding the nasal airway which may cause sleep apnoea or lack of oxygen in the brain through pulling both sides of the levator labii superioris muscle by the surface of the skin at nasal labial region. At the same time, said method also serves its cosmetic contouring purpose of pulling the submental, submandibular and lateral temporal region.

In some embodiments, said method may comprise firstly applying the first portion to the face, and then applying the second portion to contour at least one of a wearer's submental, submandibular and lateral temporal region. The method may also comprise firstly applying the second portion to contour at least one of a wearer's submental, submandibular and lateral temporal region, and then applying the first portion to the face. It will be appreciated that the first and second portion can also be applied simultaneously.

Moreover, in some cases discussed below, a shape memory material may be used. That material may be incorporated into one or both of the first portion and second portion, or may be provided as an insert or attachment (e.g. by hook and loop attachment system) to one or both of the first portion and second portion. The shape memory material has a first, attachment condition at which it is attached to the face or head of the wearer, and a second, predetermined or designed position, to which it moves in accordance with its shape memory properties. This can enable the method to comprise placing the prosthesis on the face in the first condition such that the prosthesis moves to or assumes the second condition and thereby moves the face into a desired position for contouring and nasal passage clearance (i.e. keeping the nasal passage open). The first condition may correspond to the position of the face prior to contouring and the second condition may correspond to the desired position of the face after contouring. During weight-loss, the shape of the wearer's face changes. Thus, the first condition can be matched to suit the current shape

of the wearer's face prior to contouring, and the second condition can match the desired shape after contouring.

Said method can be used with or without the use of deoxycholic acid (Kybella) injection at the localized treatment area for patients with fats accumulated under the chin (double chin) and possibly extended period to keep the skin tighten after the fats are dissolved by the Kybella. Said Kybella treatment is known to dissolve fats around the submental, submandibular and lateral temporal region. However, Kybella itself does not tighten skin. There is need to contour the face for loose skin after the fats are dissolved by the deoxycholic acid.

The prosthesis functions, in part, as a facial tension strip and to contour the wearer's face. Specifically, the second portion, comprising a facial tension strip, lifts or pulls the submental, submandibular and lateral temporal region of the human face, without or with the use of Kybella injection, thus achieving contouring.

The proposed method also has the extended functional purpose of expanding the nasal airway, thereby expanding obstructions due to conditions such as a deviated septum or narrow nasal airway. This improves the appearance of the submental, submandibular and lateral temporal region of the face while expanding the nasal airway to improve breathing. Overweight or obese patients with BMI higher than 28, and patient's with a deviated septum, normally have nasal airway obstruction. This prosthesis can be used on a regular basis post Kybella treatment just to maintain the shape of the face contour and to simultaneously improve nasal airway breathing.

The proposed method is simple for the layperson to use. Said method improves the wearer's breathing by expanding the nasal airway which could cause sleep apnoea or lack of oxygen in the brain. Specifically, said method

comprises pulling both sides of the levator labii superioris muscle by the surface of the skin at nasal labial region. At the same time, it serves its cosmetic contouring purpose of pulling the submental, submandibular and lateral temporal region with or without deoxycholic acid treatment.

The anatomy of the nose will now be described to help understand how the proposed prosthesis works. A typical nose includes bone, skin, nasal cavity, internal nasal valve and outer nasal valve, septum, mucous membrane, turbinates, and sinuses. The bone is for supporting the bridge of the nose. The upper cartilage supports the side of the nose. The lower cartilage adds support, width, and height. It helps shape the nostrils and the tip of the nose. The bone and cartilage under the skin give the nose most of its size and shape. The nose also includes skin that helps shape the nose. Nasal cavity is a hollow space behind the nose that air flows through. Septum is a thin wall made of cartilage and bone. It divides the inside of the nose into two parts, i.e., left and right. Mucous membrane is thin tissue that lines the nose, sinuses, and throat. It warms and moistens the air the wearer breathes in. It also makes the sticky mucus that helps clean the air of dust and other small particles. Turbinates are curved, bony ridges on each side of the nose. They are lined with mucous membrane. They warm and moisten the air the wearer breathes in. Sinuses are hollow, air-filled chambers in the bone around the nose. Mucus from the sinuses drains into the nasal cavity.

In some embodiments, in use, the first portion of the prosthesis is positioned on a nasolabial region of the face, to pull the muscle of the face towards one or both ears. To be specific, said prosthesis can be used to pull the wearer's levator labii superioris muscle via the facial skin towards the wearer's ears on both cheeks at the nasolabial region to expand the wearer's nasal airway. The first portion is useful to expand the nasal airway of the overweight and obese patients with BMI above 28. The proposed

method includes pulling the wearer's levator labii superioris muscle towards the wearer's ears on one or two cheeks at the wearer's nasolabial region.

In some embodiments, the proposed method includes using the prosthesis 300 (Figure 2) to be attached from the back or top 301 of the users head behind the wearer's ears to the submental 302, submandibular 303 and lateral temporal region 304 of the wearer's head. The first portion comprises one or more adhesive strips for adhering to skin of the face. Specifically, said prosthesis has a strip/extension 305 (i.e. the first portion) having an adhesive in the bottom part of the strip/extension for affixing to the surface region of nasolabial skin where the levator labii superioris muscle at both side of the nose stretches laterally. The second portion 306 is adapted to contour the face at the wearer's submental, submandibular and lateral temporal region. As shown in Figure 2, the proposed method includes pulling one or more adhesive strips of the prosthesis, adhered to the wearer's facial skin, whereby the wearer's levator labii superioris muscle is pulled to expand the wearer's nasal airway. Providing the second portion 306 can anchor the first portion to ensure the force is not reduced when the wearer's skin (which, for obese people, can include folds and be in general excess) relaxes after the first portion is release after application thereof to the face. In some embodiments, the wearer can feel the nasal cavity expanded once the first portion 305 is affixed to the surface region of nasal labial. The second portion 306 is coupled to the first portion 305 such that the second portion 306 supports the first portion 305 for application of the force.

It will be appreciated that unlike the prior art where the prostheses used for expanding the nasal are affixed to the cheek bone through adhesive near the facial area of nose for the expansion, the present invention aims to use under prosthesis strip adhesive to adhere and pull the facial skin surfaces at the nasal labial region and indirectly pull the levator labii

superioris muscle. The use of the proposed prosthesis makes it possible to maintain both sides of the wearer's nasal valve to be expanded.

In some examples, the nasal expander 305 (i.e. the first portion) has one end of the strip that permits the strip to be positioned on the outer surface of the nose in the area of the side of the nose adjacent the opening of the nostril at the alar facial groove or junction which is adjacent the alar sidewall. Prolonged application of large forces to the alar sidewall may cause a stretched or enlarged nose or nostrils due to the constant pulling force of the lower nasal cavity. Accordingly, the present prosthesis may provide a prosthesis tension strip like device that has capability for adjustment.

In this regard, at least one of the first portion and the second portion can be stretchable, resilient or elastic. In the case of being stretchable, the second portion 306 of the prosthesis may be stretched so as to accommodate different head types. However, stretching may imply passive deformation such that upon removal of force applied to stretch the second portion 306, the second portion 306 may not return back to its original length. In contrast, resilient or elastic imply that the resilient or elastic portion can return to its original length after removal of force. In use, the second portion can be stretched and attached to the face in a stretched condition. With reference to Figure 3, the nasal expander 305 may comprise one or more adhesive strips 401. The nasal expander 304 may further comprise one or more wings (i.e. bridges or lengths) 402 between two different or spaced adhesive strips 401. The wings 402 may be resilient such that the adhesive strips stick to the correct positions of the wearer's face. Said adhesive strips are adapted to adhere and pull the wearer's facial skin such that the wearer's levator labii superioris muscle is pulled to expand the wearer's nasal airway. On contraction of the skin of the wearer's face, the two adhesive sections can approach by the wing or bridge therebetween resiliing (i.e. shrinking or reducing) without causing folds or

ripples that might otherwise occur if the bridge or wing is a fixed length and adhered to the wearer's face.

The prosthesis 300 may also comprise one or more adjustment mechanisms 403 configured to enable a length of the second portion to be adjusted. Said adjustment mechanisms may include a buckle, hook and loop fasteners etc. The present invention comprises operating at least one adjustment mechanism to change a length of the second portion. This can occur after performance of step 904 – e.g. during prolonged treatment as the excess skin of the wearer reduces during weight loss. It will be appreciated that the use of said adjustment mechanisms could improve the securement of the strip on the head portion.

The proposed prosthesis for therapeutic use may have variable physical properties, depending on the particular application. In some examples as shown in Figure 4, the contact position of the wearer's head and prosthesis 300 is not fixed. In this case, the prosthesis 300 can be attached from the back or top 301 of the users head behind the wearer's ears, depending on the wearer's head size and wearer's need. Such design is flexible, and enables the wearer to adjust the contact position of the prosthesis 300 and wearer's head as needed. In some other examples as shown in Figure 5, the second portion 306 of the prosthesis 300 further includes an opening 601 for receiving the wearer's ear. In such a case, the prosthesis 300 is fixed in or around the wearer's ears so as to improve the securement of the strip on the face and head portion by avoiding unnecessary slippage of the prosthesis.

In general, nasal cavity ventilation expansion by the strip attachment near the nasal labial region could increase the ventilation volume of the nasal cavity effectively and decrease the nasal resistance, relieving upper airway obstruction especially for overweight patients or patients with nasal obstructions. Overweight patients with a deviated septum may also use the

prosthesis to enlarge the nasal airway from an external position using the present prosthesis due to the pulling of the levator labii superioris muscle at both size of the nose, and lateral stretch, afforded by the first portion of the prosthesis. The wearer can accordingly instantaneously feel the expanded upper nasal airway. At the same time, the contour of the lower chin can be shaped to improve the securement of the strip on the face and head portion.

As mentioned above, the septum is the cartilage in the nose that separates the nostrils (i.e. the two nasal passages leading to the nostrils). Typically, the septum sits at the centre and divides the nostrils evenly. However, many people have an uneven septum, which makes one nostril larger than the other. Severe unevenness is known as a deviated septum. It can cause health complications such as a blocked nostril or difficulty breathing. An uneven septum is very common. According to the studies brought by the American Academy of Otolaryngology, nearly 80 percent of all septum are deviated to some degree and they may not be due to overweight. Most people with a deviated septum have only a minor deviation. Majority may have possible symptoms which include difficulty breathing, especially through the nose; having one side of the nose that is easier to breathe through; nosebleeds; sinus infections; dryness in one nostril; snoring or loud breathing during sleep; and nasal congestion or pressure. In sum, severe deviation can be accompanied by facial pain or frequently have nosebleeds or sinus infections. It may also cause breathing difficulty and affecting quality of life. Surgery is usually the alternative to correct a chronic nasal congestion or overweight patients with sleep apnoea if the prosthesis has its stretched nasal cavity limitations.

Figure 6 shows an example deviated spectrum. Nasal patency is critical to the airway, and nasal obstruction can contribute to snoring, sleep apnoea, and disrupted sleep. The patency of a good nasal airway is also critical for the growing number of people using continuous positive airway pressure

(CPAP) for sleep apnoea. Collapse and weakening of the nasal cartilage can also lead to external deformities and cosmetic changes to the nose. Loss of support and volume of the lower lateral cartilages, mid-nasal portion or the dorsum can lead to undesirable cosmetic changes. Relative tissue defects on the dorsum of the nose may lead to an irregular nasal profile.

As mentioned before, the proposed prosthesis 300 can be used to expand a nasal airway obstruction resulting from a deviated septum or narrow nasal airway, thus improving the appearance of the submental, submandibular and lateral temporal region of the face while expanding the nasal airway to improve breathing. In some embodiments (Figure 7) where the nasal deviation is only for one side of the nose (i.e. asymmetrical deviation), only one side of the first portion 402 needs to be attached to the nasal labial region. In such case, the prosthesis is adapted to pull the wearer's levator labii superioris muscle towards the wearer's ear on only one cheek at the wearer's nasolabial region. The proposed method also comprises pulling only one adhesive strip of the prosthesis to adhere the wearer's facial skin whereby the wearer's levator labii superioris muscle is pulled to expand the wearer's nasal airway. Such design could reduce unnecessary material consumption.

The prosthesis may be made from waterproof material. Said waterproof prosthesis actually allows the wearer's skin to breathe. For example, fabricating the prosthesis, or one of both the first and second portions thereof, from waterproof material such as Gore-Tex can enable the prosthesis, or part thereof, to repel liquid water and allow water vapour to pass through from the skin out to the environment thus reducing discomfort or skin irritation. In some embodiments, the waterproof prosthesis may be composed of stretched polytetrafluoroethylene (PTFE) or any other equivalent breathable material. Said waterproof prosthesis may also be used to reduce discomfort or skin irritation. The waterproof prosthesis may be further designed to be a lightweight, waterproof fabric

for all-weather use. The prosthesis may comprise one or more polymers that can be used for imparting stretchability or elasticity on the prosthesis, for example Nylon, expanded PTFE (ePTFE), soft neoprene, rubber nitrile and shape memory polymers (SMP), copolymers, terpolymers and combinations and mixtures thereof. Compared to the prior art which is impervious or only semi-impervious to moisture, the proposed prosthesis will not cause skin irritation and uncomfortableness as moisture is not trapped in the band like structures.

It will be appreciated that the shaped prosthesis may be made from soft woven or non-woven material. As mentioned, the shaped prosthesis may have adjustment mechanisms for example over the back or top of the head or Velcro for fine adjustment or adjustable. Materials may also have shape memory properties which allows for their shape to assume a predetermined shape after tensioning and contour tightening with the body heat – e.g. 37°C.

In some embodiments, one or both of the first portion 305 and the second portion 306 is adapted to receive an insert formed from shape memory material. The use of inserts made of materials which have shape memory properties permits the implant to assume a present shape after insertion. The wearer may apply the prosthesis to the face in a first state of the face (e.g. wherever the skin sits before the fat is dissolved by Kybella). On being warmed by body heat, the shape memory material will resile to a predetermined shape and pull the skin with it so that the face assumes a desired shape. Alternately, certain conditions may be applied, such as application of heat, pressure, vacuum forming that will allow the material to assume a desired fixed or modified shape with the use of different layers through heat treatment above its T_g (glass transition temperature) to induce its shape memory. The necessary condition will depend on the intrinsic properties of the shape memory material chosen to produce the prosthesis. The fixed shape of the prosthesis may also be adjusted before

or after insertion. It will be appreciated that the prosthesis may be also composed of materials without shape memory.

It will be appreciated that many further modifications and permutations of various aspects of the described embodiments are possible. Accordingly, the described aspects are intended to embrace all such alterations, modifications, and variations that fall within the spirit and scope of the appended claims.

Throughout this specification and the claims which follow, unless the context requires otherwise, the word "comprise", and variations such as "comprises" and "comprising", will be understood to imply the inclusion of a stated integer or step or group of integers or steps but not the exclusion of any other integer or step or group of integers or steps.

The reference in this specification to any prior publication (or information derived from it), or to any matter which is known, is not, and should not be taken as an acknowledgment or admission or any form of suggestion that that prior publication (or information derived from it) or known matter forms part of the common general knowledge in the field of endeavor to which this specification relates.

Claims

1. A prosthesis adapted to contour a wearer's face, the prosthesis comprising:
 - a first portion adapted to be positioned on the face to apply a pulling force to a muscle of the face for expanding the wearer's nasal airway; and
 - a second portion adapted to contour the face at at least one of a wearer's submental, submandibular and lateral temporal region, the second portion supporting the first portion for application of the force.
2. The prosthesis of claim 1, the first portion being positioned, in use, on a nasolabial region of the face, to pull the muscle of the face towards one or both ears.
3. The prosthesis of claim 1 or 2, wherein the muscle of the face is a levator labii superioris muscle.
4. The prosthesis of any of claims 1 or 2, wherein the first portion comprises one or more adhesive strips for adhering to skin of the face.
5. The prosthesis of any of claims 1 or 2, wherein at least one of the first portion and the second portion is stretchable.
6. The prosthesis of any of claims 1 or 2, wherein the prosthesis is made from one or more of waterproof material soft woven or non-woven material.
7. The prosthesis of any of claims 1 or 2, wherein the prosthesis comprises made from memory material.

8. The prosthesis of claim 7, wherein one or both of the first portion and the second portion is adapted to receive an insert formed from shape memory material.
9. The prosthesis of any of claims 1 or 2, wherein the prosthesis is made from at least one of Gore-Tex, stretchable Nylon, PTFE, soft neoprene, SMP, copolymers, terpolymers, combinations and mixtures.
10. The prosthesis of any of claims 1 or 2, wherein the second portion comprises one or more adjustment mechanisms configured to enable a length of the second portion to be adjusted.
11. The prosthesis of claim 1 or 2, being fixed, in use, in or around one or both ears of the wearer.
12. A method of contouring a wearer's face, comprising:
 - applying a first portion of a prosthesis to the face in a position to apply a pulling force to a muscle of the face for expanding the wearer's nasal airway; and
 - applying a second portion of the prosthesis at a position to contour at least one of a wearer's submental, submandibular and lateral temporal region, the second portion supporting the first portion for application of the force.
13. The method of claim 11 or 12 comprising pulling the wearer's levator labii superioris muscle towards the wearer's ears on one or two cheeks at the wearer's nasolabial region.
14. The method of claims 11 or 12 comprising pulling one or more adhesive strips of the prosthesis to adhere the wearer's facial skin whereby the wearer's levator labii superioris muscle is pulled to expand the wearer's nasal airway.

15. The method of claims 11 or 12, further comprising stretching the prosthesis and attaching it to the face in a stretch condition.
16. The method of claims 11 or 12, the prosthesis made from at least one of waterproof material and either soft woven or non-woven material.
17. The method of claims 11 or 12, wherein the first portion and second portion are applied sequentially, with:
 - with the first portion applied first, wherein applying the second portion of the prosthesis comprises applying the second portion so that a force applied by the second portion resists movement of the first portion towards the wearer's nasal airway; or
 - with the second portion applied first, wherein applying the first portion of the prosthesis comprises applying the first portion so that a force applied by the first portion resists movement of the second portion away from the wearer's nasal airway.
18. The method of claims 11 or 12, the prosthesis made from memory material having a first shape and a second, deformed shape, the method comprising applying the prosthesis to the face in the second shape.
19. The method of any of claims 11 or 12, the prosthesis made from at least one of Gore-Tex, stretchable Nylon, PTFE, soft neoprene, SMP, copolymers, terpolymers combinations and mixtures.
20. The method of any of claims 11 or 12, the second portion comprising one or more adjustment mechanisms, the method further comprising operating at least one adjustment mechanism to change a length of the second portion.

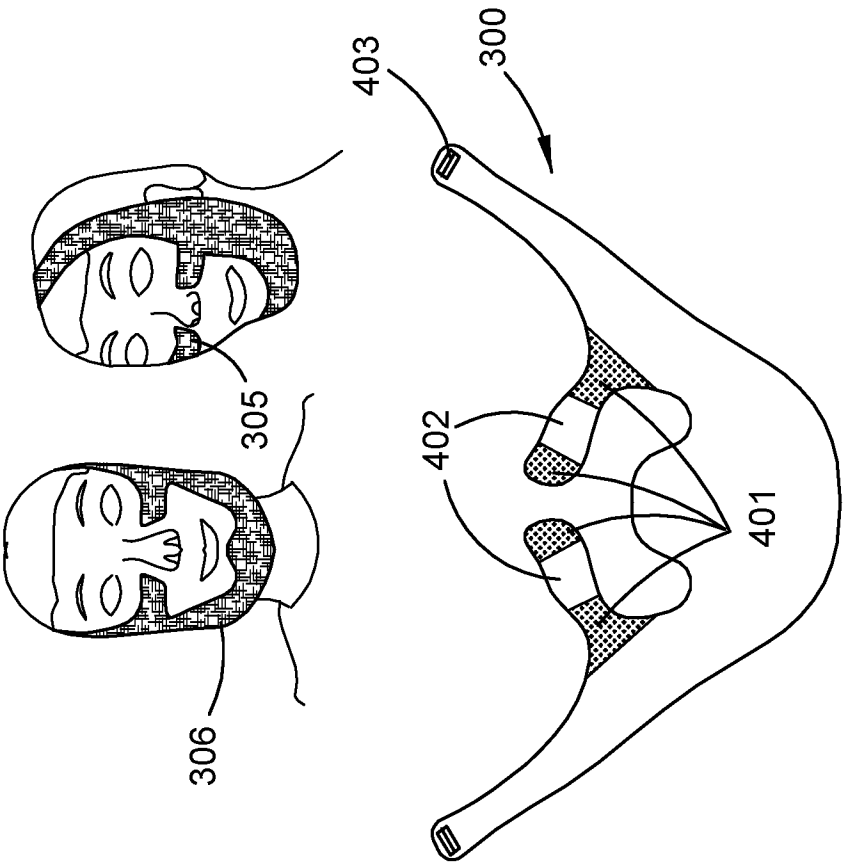


FIGURE 3

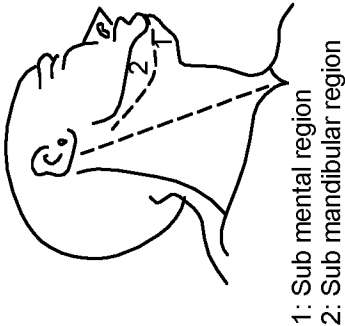


FIGURE 1

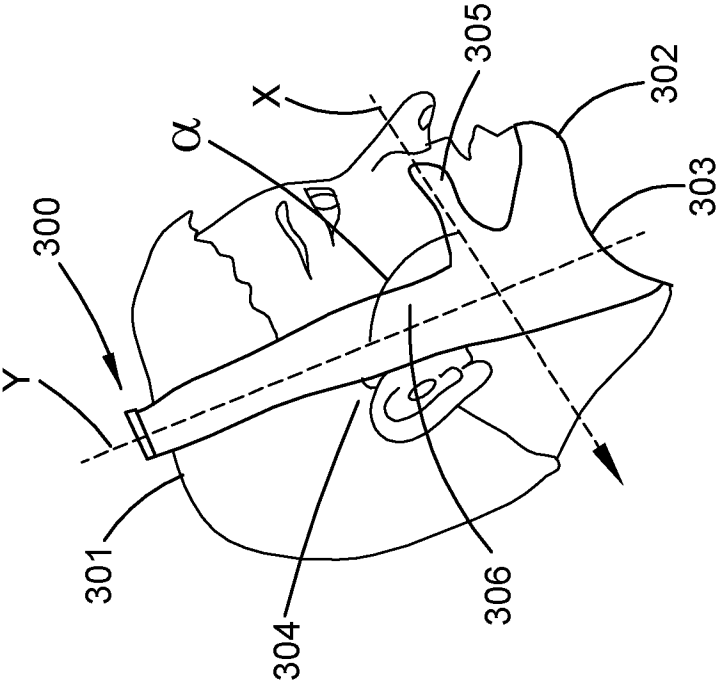


FIGURE 2

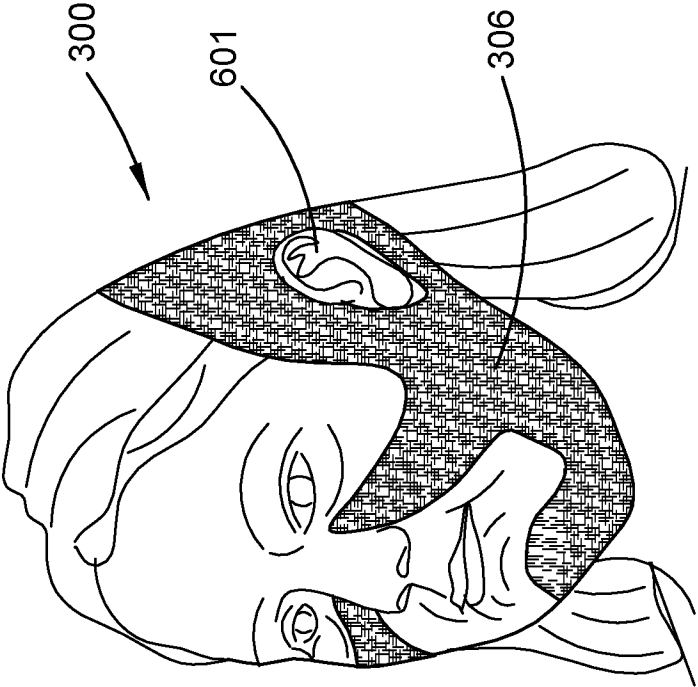


FIGURE 5

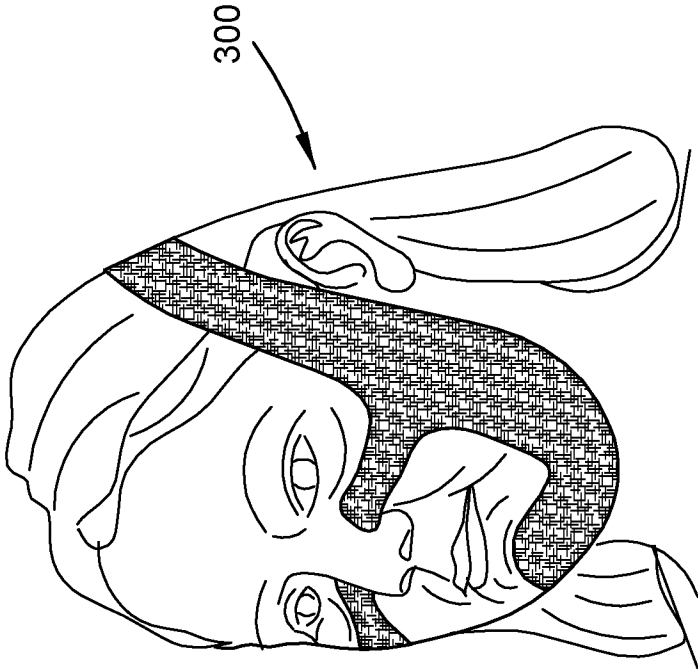


FIGURE 4

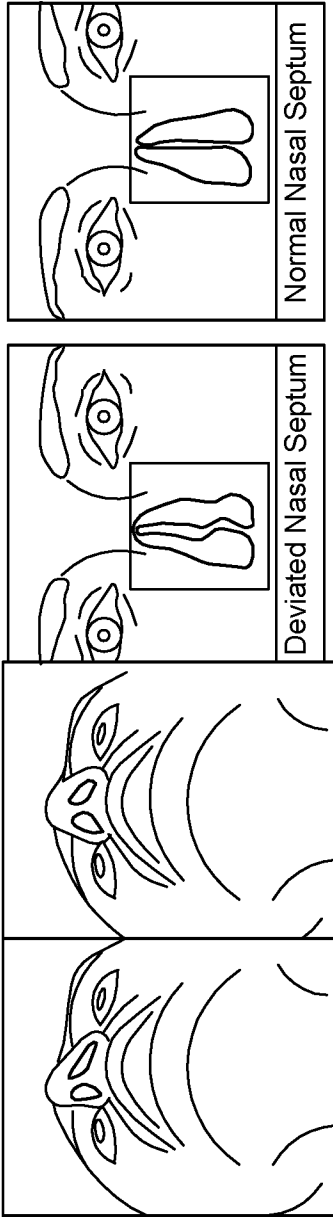


FIGURE 6

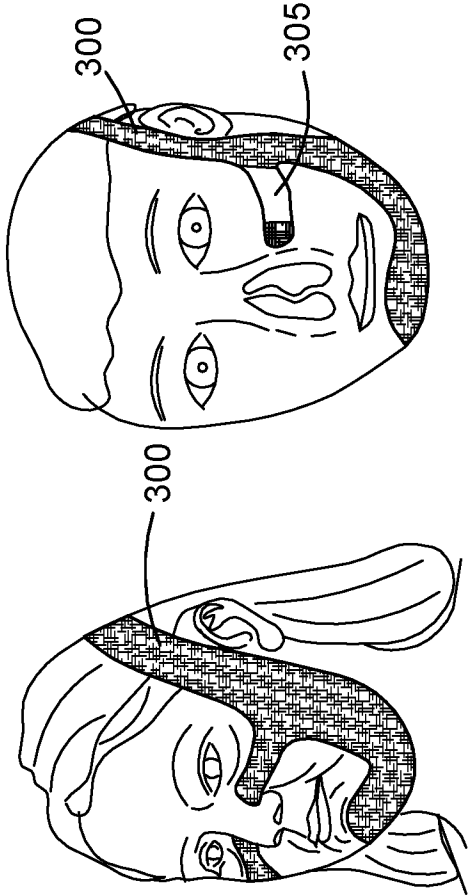


FIGURE 7

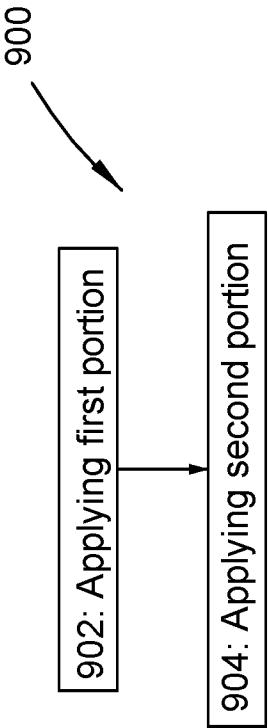


FIGURE 8

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SG2022/050010

A. CLASSIFICATION OF SUBJECT MATTER

A61F 5/56 (2006.01) A61F 5/08 (2006.01)

According to International Patent Classification (IPC)

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A61F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

FAMPAT: face, head, prosthesis, mask, nasal, airway, passage, levator labii superioris, sleep disorder, apnoea, hypopnea, snoring and like terms

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2009/0025715 A1 (SUGDEN T. AND SUGDEN S.) 29 January 2009 Para. [0026]-[0032]; figs. 1-2, 8a	1-20
X	WO 2014/058740 A1 (WEIR K.R.) 17 April 2014 Pg. 6 line 6-pg. 7 line 2; pg. 7 lines 4-9, 11-18; figs. 1, 5, 6	1-20
X	US 2011/0308528 A1 (CIARDULLO J.-P.) 22 December 2011 Para. [0015], [0019]-[0021], [0060], [0066], [0068]-[0071]; fig. 8A, 8B	1-20
X	JP 2018-089255 A (TAKEMOTO KK) 14 June 2018 Abstract; para. [0014]-[0019], [0031], [0046], [0050], [0055]-[0058]; figs. 1-4 of the machine translation	1-9, 12-19
A	US 2011/0152921 A1 (LEHMAN A.) 23 June 2011 Whole document	-

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

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Date of the actual completion of the international search

01/04/2022

(day/month/year)

Date of mailing of the international search report

04/04/2022

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/SG2022/050010

Note: This Annex lists known patent family members relating to the patent documents cited in this International Search Report. This Authority is in no way liable for these particulars which are merely given for the purpose of information.

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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WO 2014/058740 A1	17/04/2014	CN 104768503 A HK 1207282 A1 US 2015/0230965 A1	08/07/2015 29/01/2016 20/08/2015
US 2011/0308528 A1	22/12/2011	WO 2011/162807 A1	29/12/2011
JP 2018-089255 A	14/06/2018	NONE	
US 2011/0152921 A1	23/06/2011	NONE	