

1 The distal end of the first base supports the patient's neck and consists of a support
2 adjustable in the z-axis, which assists in maintaining the desired sniffing position. The
3 proximal end of the base consists of a slightly inclined or flat surface adjustable in the z-
4 direction, with or without a cut-out center, which provides head support to further
5 optimize the sniffing position. An adjustable ramp can be placed under the patient's
6 back and shoulders to achieve the desired angles. A first support is positioned on the first
7 side of the base, and a second support positioned on the second side of the base. An
8 adjustable support structure within the interior of the base is provided to mechanically
9 adjust the height and length of the ramp to custom fit to the patient. A first mandible arm
10 is configured to contact the one side of the patient's jaw, and a second mandible arm
11 positioned on the second support, and is configured to contact the other side of the
12 patient's jaw. The first and second support of the mandible arms are moveable on the X,
13 y and z axis. The first and second proximal parts of the moveable arms are moveable
14 along the x, y and z axis, while the distal parts are rotatable, such that each is
15 positionable to be in contact with the patient's jaw, and maintain a desired position.

16 Embodiments of the present invention also provides an improvement over prior
17 art positioning devices enabling both the sniff position and jaw thrust, and comprising a
18 base having a surface for supporting a carriage for supporting a patient's head adjustable
19 in a Z-axis, supporting a patient's neck on either the first surface or the second surface,
20 which is adjustable in the z-axis, to place the patient in a desired sniffing position. An
21 upper arm constrains the patient's head in translation along all three axes. First and
22 second mandible arms are provided extending from the first surface for contact with the
23 patient's jaw, so as to maintain the patient in a desired position the patient lies on his or
24 her back.

25 According to an aspect of the invention, there is provided a nasal mask which can
26 be used separately, or with an oral mask releasably attached to the nasal mask through a
27 closable opening on the nasal mask, wherein when the nasal mask is used by itself, the
28 closable opening is adapted to automatically close, whereby to seal the nasal mask
29 opening against leakage and permit positive pressure ventilation of the nasal mask when
30 the nasal mask is used by itself.

31 In an embodiment, a nasal mask is described, the nasal mask can be used
32 separately, or with an oral mask releasably attached to the nasal mask through a closable
33 opening on the nasal mask.

1 In another embodiment, a nasal mask or a combined nasal mask/oral mask full
2 face mask is described, the nasal mask or combined nasal mask/oral mask full face mask
3 comprising a nasal mask body adapted for connection with a supply of breathable gas,
4 preferably oxygen, air, or air anesthetic gas; a cushion secured to said nasal mask body,
5 the body and cushion forming a nose-receiving cavity, said cushion including: a nasal
6 bridge region, a cheek region and an upper lip region; a substantially triangularly-shaped
7 first nasal membrane formed of resilient material having a first molded inwardly curved
8 rim to surround patient's nose; a second nasal membrane formed of resilient material,
9 said second membrane being relatively more flexible than said first nasal membrane, said
10 second nasal membrane having a second molded inwardly curved rim, said second
11 molded rim being of the same general shape as said first molded rim and fixed to and
12 extending away from said first nasal membrane so as to provide a second nasal
13 membrane inner surface spaced a first distance from an outer surface of said first molded
14 rim in said cheek region and said second membrane inner surface spaced a second
15 distance from said first nasal membrane outer surface of said first molded rim in said
16 nasal bridge region, said second distance greater than said first distance, said first and
17 second distances measured when the mask is not in use, a portion of said second molded
18 rim forming a face contacting seal; and wherein said seal portion is substantially
19 coterminous with respect to said second molded rim and is resiliently deformable
20 towards said first nasal membrane when said mask is in use.

21 In another embodiment, a nasal mask for connection to a patient's face is
22 described, the nasal mask comprising a mask body for connection with a supply of
23 breathable gas; and a mouth cushion secured to said mask body, the mask body and
24 mouth cushion forming a mouth-receiving cavity, said mouth cushion including: a mouth
25 region, a cheek region and an upper and lower lip region; a substantially oval-shaped
26 first mouth membrane of resilient material having a first molded inwardly curved rim to
27 surround a patient's nose; a second mouth membrane also of resilient material, said
28 second mouth membrane being relatively more flexible than said first mouth membrane,
29 said second mouth membrane having a second molded inwardly curved rim, said second
30 molded rim being of the same general shape as said first molded rim and fixed to and
31 extending away from said first mouth membrane so as to have a second mouth
32 membrane inner surface spaced a first distance from an outer surface of said first molded
33 rim in said cheek region and said second mouth membrane inner surface spaced a second
34 distance from said first mouth membrane outer surface of said first molded rim in said

1 mouth region, said second distance greater than said first distance, said first and second
2 distances measured when the mask is not in use, a portion of said second molded rim
3 forming a face contacting seal; wherein said seal portion is substantially coterminous
4 with respect to said second molded rim and is resiliently deformable towards said first
5 mouth membrane when said mask is in use.

6 It is provided a method for positioning a patient providing a device as above
7 described placing the patient's head substantially on the first surface of the carriage, and
8 using an adjustable device to place the patient's head and/or neck in a desired position.

9 The first mandible arm and second mandible arm are then moved to contact the patient's
10 jaw, wherein the contact of the first mandible arm and the second mandible arm provides
11 sufficient force either by the provider or mechanically to substantially maintain the
12 patient's head, neck, and/or jaw in a desired sniffing position.

13 In still yet other embodiments, there is provided a flexible and soft head
14 restraining device either attachable or built in to an anesthesia full face mask, nasal
15 mask, and nasal-oral mask, comprising two ends; a first proximal end that attaches to one
16 side of the first surface of a base; which can then extend horizontally and come in

1 Claims:

2 1. A nasal mask which can be used separately, or with an oral mask releasably
3 attached to the nasal mask through a closable opening on the nasal mask, wherein when
4 the nasal mask is used by itself, the closable opening is adapted to automatically close,
5 whereby to seal the nasal mask opening against leakage and permit positive pressure
6 ventilation of the nasal mask when the nasal mask is used by itself.

7 2. The nasal mask as claimed in claim 1, wherein when the oral mask is engaged
8 with the nasal mask, the closable opening allows gases to flow bilaterally between the
9 oral mask and the nasal mask.

10 3. The nasal mask as claimed in claim 1 or claim 2, wherein when the oral mask is
11 combined with and engaged with the nasal mask, the combination creates a face mask
12 which can be used for bag-mask ventilation, general anesthesia, deep sedation or
13 respiratory treatment.

14 4. The nasal mask as claimed in any one of claims 1-3, wherein when nasal mask is
15 used by itself, the closable opening automatically closes whereupon the nasal mask may
16 be used for nasal Bipap/CPAP, ventilation during intubation, general anesthesia, deep
17 sedation, respiratory treatment, delivery of oxygen, or treatment of obstructed sleep
18 apnea.

19 5. The nasal mask of any one of claims 1-4, wherein the closable opening comprises
20 a door, and the oral mask includes a connector which when engaged with the nasal mask
21 door, pushes the door open.

22 6. The nasal mask of any of claims 1-5, wherein the nasal mask includes a second
23 opening adapted to be connected to an end tidal CO₂ monitor or oxygen supply.

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