CLAIMS

What is claimed is:

1. A patient interface assembly for supplying a flow of pressurized breathing gases to an airway of a patient, the patient interface assembly comprising:

a patient interface comprising a cushion configured to seal around a portion of the patient's face;

a headgear assembly comprising:

at least two side straps; and

one or more tension elements configured for engagement with the at least two side straps;

at least one adjustment assembly comprising:

a rotatable member coupled with the one or more tension elements;

an actuator configured to selectively rotate the rotatable member to adjust the tension in the one or more tension elements; and

a torque transfer element configured to communicate torque between the actuator and the rotatable member, and configured to limit the torque applied to the rotatable member by the actuator.

2. The patient interface assembly of claim 1, wherein the torque transfer element is configured to limit the torque applied to the rotatable member by the actuator to a torque threshold.

3. The patient interface assembly of claim 2, wherein the actuator and torque transfer element are rotationally coupled up to the torque threshold, and rotationally decoupled above the torque threshold.

4. The patient interface assembly of any one of claims 1 to 3, wherein the headgear assembly comprises a tension element extending into at least a portion of each side strap.

5. The patient interface assembly of any one of claims 1 to 4, wherein the adjustment assembly is configured to wind, store and unwind the one or more tension elements.

6. The patient interface assembly of any one of claims 1 to 5, wherein:

the adjustment assembly comprises apertures through which the tension elements extend out of, and

the rotatable member comprises an annular channel into which the tension element may be wound, stored and/or unwound.

7. The patient interface assembly of any one of claims 1 to 6, wherein the adjustment assembly is at least partially formed with a part of the patient interface.

8. The patient interface assembly of any one of claims 1 to 7, wherein the headgear assembly comprises a pair of upper side straps and a pair of lower side straps.

9. The patient interface assembly of claim 8, wherein the tension of the pair of upper side straps and the pair of lower side straps are independent of each other.

10. The patient interface assembly of claim 8 or 9, wherein:

the pair of upper side straps and pair of lower side straps are both associated with a first adjustment assembly, or

the pair of upper side straps are associated with a first adjustment assembly, and the pair of lower side straps are associated with a second adjustment assembly.

11. The patient interface assembly of any one of claims 1 to 10, wherein the torque transfer element is configured to move axially and rotationally with respect to the actuator.

12. The patient interface assembly of any one of claims 1 to 11, wherein the headgear assembly comprises a first locking element and a second locking element biased against each other.

13. The patient interface assembly of claim 12, wherein the first locking element is positioned on the rotatable member or on the torque transfer element, and a base of the adjustment assembly comprises the second locking element.

14. The patient interface assembly of any one of claims 1 to 13, wherein the adjustment assembly comprises a base that is molded onto a frame of the patient interface.

15. The patient interface assembly of any one of claims 1 to 14, wherein the actuator comprises an inner part configured to engage with the torque transfer element and an outer part configured to be directly actuated by a user, the inner part and outer part in rotational communication with each other.

16. The patient interface assembly of any one of claims 1 to 15, wherein rotation of the actuator in a tightening direction drives rotation of the rotatable member via the torque transfer mechanism and a retracting action on the tension elements, such that the headgear assembly is tightened.

17. The patient interface assembly of claim 16, wherein the rotation of the actuator in the tightening direction causes a substantially similar degree of retraction on each of the four side straps.

18. The patient interface assembly of any one of claims 1 to 11, wherein the torque transfer element is biased towards a rear end of the actuator, such that torque is transferrable from the actuator to the rotatable member via the torque transfer element.

19. The patient interface assembly of claim 18, wherein:

rotation of the actuator in an untightening direction urges axial movement of the torque transfer element away from the rear end of the actuator,

axial movement of the torque transfer element away from the rear end of the actuator transfers to a rotatable member, and

axial movement of the rotatable member urges first locking element and second locking element away from each other.

20. The patient interface assembly of any one of claims 1 to 19, wherein when the first locking element and second locking element are disengaged, the headgear assembly can be loosened by rotating the actuator in the untightening direction, or by applying tension to the headgear assembly to pull the tension elements from the rotatable member.