CLAIMS

1. A respiratory pressure therapy (RPT) system comprising:

a patient interface comprising:

at least one housing portion at least partially forming a plenum chamber pressurizable to a therapeutic pressure above ambient air pressure;

a seal-forming structure constructed and arranged to seal with a region of the patient's face at or surrounding the patient's nares such that a flow of air at said therapeutic pressure is delivered to at least the patient's nares, the seal-forming structure constructed and arranged to maintain said therapeutic pressure in the plenum chamber throughout the patient's respiratory cycle in use; and

a positioning and stabilising structure constructed and arranged to provide an elastic force to hold the seal-forming structure in a therapeutically effective position on the patient's head, the positioning and stabilising structure comprising a tie, a lateral portion of the tie being constructed and arranged to overlie a region of the patient's head superior to the otobasion superior in use, and a superior portion of the tie being constructed and arranged to overlie a region of the patient's head in a region of the parietal bone in use, wherein the positioning and stabilising structure has a non-rigid decoupling portion;

a blower configured to pressurize the plenum chamber to the therapeutic pressure, the blower having a motor, the blower being connected to the plenum chamber such that the blower is suspended relative to the remainder of the patient interface by the plenum chamber;

a power supply configured to provide electrical power to the blower;

a vent assembly configured to discharge gas from the plenum chamber to atmosphere, the vent assembly having an open position to allow gas to be discharged to atmosphere through the vent assembly and a closed position to prevent gas from being discharged to atmosphere through the vent assembly;

a sensor port positioned downstream of the vent assembly such that the sensor port is in pneumatic communication with the air within the plenum chamber in any position of the vent assembly; and

a sensor in pneumatic communication with the air within the plenum chamber via the sensor port.

2. The RPT system of claim 1, wherein the vent assembly comprises:

a base;

at least one vent hole extension extending from the base and at least partially forming a passage;

at least one vent hole passing through the at least one vent hole extension from the passage to atmosphere; and

at least one flexible membrane attached to the at least one vent hole extension, the at least one flexible membrane being configured to cover the at least one vent hole in the closed position, and the at least one flexible membrane being configured not to cover the at least one vent hole in the open position.

3. The RPT system of claim 2, wherein the at least one vent hole extension includes an interior vent hole surface, each at least one vent hole passing through the interior vent hole surface to the passage.

4. The RPT system of claim 3, wherein the at least one flexible membrane is attached to the at least one vent hole extension at the interior vent hole surface.

5. The RPT system of claim 3 or 4, wherein the at least one vent hole extension includes an exterior vent hole surface, each at least one vent hole passing through the exterior vent hole surface to atmosphere.

6. The RPT system of claim 5, wherein the at least one vent hole extension further comprises an internal surface, and

wherein the vent hole extension has a generally triangular cross-section formed by the interior vent hole surface, the exterior vent hole surface, and the internal surface.

7. The RPT system of any one of claims 3 to 6, wherein the interior vent hole surface slopes downwardly into the interior of the vent assembly relative to a flow of pressurized gas passing through the passage.

8. The RPT system of any one of claims 2 to 7, wherein the at least one vent hole extension comprises two diametrically opposed vent hole extensions,

wherein the at least one flexible membrane further comprises two flexible membranes, each of the two flexible membranes attached to a corresponding one of the two diametrically opposed vent hole extensions, and

wherein the vent assembly further comprises a divider positioned between the two diametrically opposed vent hole extensions to form a first passage and a second passage.

9. The RPT system of claim 8, wherein the two flexible membranes do not contact the divider in the open position.

10. The RPT system of any one of claims 2 to 9, wherein the at least one flexible membrane is constructed of an elastically deformable material.

11. The RPT system of any one of claims 2 to 10, wherein the at least one flexible membrane is cantilevered to the at least one vent hole extension.

12. The RPT system of any one of claims 2 to 11, wherein the sensor port passes through the base and the sensor is positioned externally of the base to sense the flow of air passing the sensor port.

13. The RPT system of any one of claims 2 to 12, wherein the sensor port is positioned on the base such that the at least one flexible membrane does not interfere with the flow of air into the sensor port.

14. The RPT system of any one of claims 1 to 13, wherein the sensor is one of the group consisting of: a pressure sensor, a flow rate sensor, a temperature sensor, and a humidity sensor.

15. The RPT system of any one of claims 1 to 14, further comprising a plurality of sensor ports and a plurality of sensors, wherein each of the sensors is configured to sense a property of air within the plenum chamber via a corresponding sensor port.