CLAIMS

1. An air vent module (172) and a connection port assembly (104), wherein the air vent module is attachable to a mask assembly (102) for use in administering continuous positive airway pressure, the air vent module (172) comprising:

an annular component comprising a passage (144) defined by a passage wall (146),

a coupler configured to mate the annular component of the air vent module (172) to a seal chamber (110, 110') of the mask assembly, and

a plurality of vent holes (170) arranged in a circular configuration to provide radial diffusion of exhaust air; and

the connection port assembly (104) comprising:

a fluid connector (200),

a ball end (150) at a first end (202) of the fluid connector (200), the ball end (150) comprising an outer surface (152) that is contoured to be snap fit into the passage wall (146) of the air vent module (172) whereby a ball joint between the passage (144) and the ball end (150) allows the passage wall (146) and the outer surface (152) to slide relatively freely with each other such that an angle between the connection port assembly (104) and seal chamber (110) can be easily changed, the ball end (150) comprising a ball rotation limiting structure at a user side of the ball end (150) which limits an extent of movement of the ball end (150) within the passage (144), and

a swivel connector at a second end (204) of the fluid connector (200) configured for connection to a conduit that is in fluid communication with a respiratory gases supply.

2. The air vent module (172) and connection port assembly (104) of claim 1, wherein the fluid connector (200) is an elbow comprising a bend of about 90 degrees.

3. The air vent module (172) and connection port assembly (104) of claim 1 or 2, wherein the swivel connector comprises a generally cylindrical inner component and a generally cylindrical outer component that slides over the inner component to provide rotational movement of the outer component.

4. The air vent module (172) and connection port assembly (104) of any one of the preceding claims, wherein the passage wall (146) comprises a ball socket with a concave surface configuration.

5. The air vent module (172) and connection port assembly (104) of any one of the preceding claims, wherein the connection port assembly (104) can rotate and have angular movement relative to the passage (144).

6. The air vent module (172) and connection port assembly (104) of any one of the preceding claims, wherein the ball end (150) comprises a further ball rotation limiting structure at a front side of the ball end (150), the further rotation limiting structure comprising a ring (152B) provided around an entrance to the passage (144).

7. A mask assembly (102) for use in administering continuous positive airway pressure treatment, the mask assembly (102) comprising:

a seal chamber (110, 110') configured to cover at least a mouth or a nose of a user to deliver respiratory gases to the user, the seal chamber (110, 110') comprising:

a mask base (114), and

a mask seal (116) provided around the perimeter of the mask base (114) and configured to form a seal against the user's face, wherein the mask base (114) is relatively more rigid, stiffer or more inflexible than the mask seal (116), and the mask base (114) and the mask seal (116) are integrated into a single component;

a mask frame (112) comprising headgear attachments (124, 136), wherein the mask frame (112) can couple to the seal chamber (110, 110') with interlocking clips or tabs to hold the seal chamber (110, 110') and help stabilize the mask assembly (102) on the user's face, and wherein the mask frame (112) is substantially rigid or semi-rigid;

a headgear assembly (106) configured to attach to the headgear attachments (124, 136) of the mask frame and wrap around the user's head to hold the mask frame (112) in place; and

an air vent module (172) and connection point assembly (104), as recited in any preceding claim, which comprises a separate component that is attachable to the mask assembly (102).

8. The mask assembly of claim 7, wherein the mask seal (116) is overmolded onto the mask base (114).

9. The mask assembly of claim 7, wherein the mask base (114) and the mask seal (116) are formed separately and secured together.

10. The mask assembly (102) of claim 9, wherein the mask base (114) and the mask seal (116) are secured together through adhesives, welding, or thermal bonding.

11. The mask assembly of any one of claims 7 to 10, wherein the mask base (114) is formed of a polycarbonate material.

12. The mask assembly of any one of claims 7 to 11, wherein the seal chamber (110, 110') comprises a generally cup-shaped configuration.

13. The mask assembly of any one of claims 7 to 12, wherein the mask seal (116) is generally triangular shaped when viewed from the back, and is configured to fit over the user's mouth and nose.

14. The mask assembly of any one of claims 7 to 13, wherein the air vent module (172) can be removed from the mask frame (112) easily for service, cleaning or replacement.

15. The mask assembly of any one of claims 7 to 14, wherein the headgear assembly (106) comprises:

a back strap (380) which, in use, extends around the back of the head of the user at a location generally above a nape of the user's neck but generally below an occipital protruberance;

upper side straps (384),

lower side straps (386) which extend from the back strap (380) generally below a respective ear of the user slightly forward of the respective ear to the mask assembly (102);

upright straps (388) which extend upward from the back strap (380) at a location rearward of a respective ear of the user to a location above the respective ear;

a top strap (382) which connects to the upper side straps 384 at a location generally above the user's respective ear,

wherein the back strap (380), top strap (382) and uprights straps (388) form a generally annular shape which encircles the occipital protuberance, or upper rear portion, of the user's head, and the annular shape comprises a three-dimensional shape.