CLAIMS

1. A humidification chamber for humidifying gases, comprising:

a water tub that is configured to receive a volume of water;

a lid engageable with the water tub for enclosing the water tub to define the interior volume of the humidification chamber;

a gases inlet for receiving a flow of gases into the interior volume of the humidification chamber~~, the gases inlet having an associated inlet conduit~~; ~~and~~

a gases outlet through which a humidified flow of gases may exit the interior volume of the humidification chamber, ~~the gases outlet having an associated outlet conduit,~~

wherein, the ~~lid is hingedly coupled to the~~ water tub is formed of rigid plastic, ~~for enclosing~~ the water tub comprising:

~~to define the interior volume of the humidification chamber and which is movable between a closed position in which the water tub is closed by the lid and an open position in which the water tub is open, and~~

~~wherein the lid and the water tub are integrally formed as a single item.~~a base having a heater plate secured into a complementary aperture of the base;

a perimeter wall extending upwardly from the base; and

an engagement portion of the base about a periphery of the aperture, the engagement portion being surrounded by a surrounding portion of the base and the engagement portion of the base having an overall thickness,

wherein, the heater plate comprises:

a main contact surface; and

an outer coupling ledge extending around the periphery of the main contact surface and which is vertically displaced from the main contact surface,

wherein the engagement portion of the base is moulded over at least a portion of the outer coupling ledge about its entire periphery, and

wherein the overall thickness of the engagement portion of the base is larger than a thickness of the surrounding portion of the base.

2. A humidification chamber according to claim 1 wherein the engagement portion comprises an upper portion above the outer coupling ledge of the heater plate and a lower portion below the outer coupling ledge~~inlet conduit is located at or toward an underside of the top of the lid~~.

3. A humidification chamber according to claim 2, wherein the upper portion of the engagement portion is at least as thick as the thickness of the surrounding portion of the base.

4. A humidification chamber according to claims 2 or claim 3, wherein the lower portion of the engagement portion is at least as thick as the thickness of the surrounding portion of the base.

5. A humidification chamber according to any one of claims 1 to 4, wherein the heater plate further comprises an upright or substantially vertical wall portion that extends around the periphery of the main contact surface.

6. A humidification chamber according to claim 5, wherein the outer ledge portion extends outwardly from the top of the upright or substantially vertical wall portion around the perimeter of the heater plate.

7. A humidification chamber according to any one of claims 1 to 6, wherein the heater plate is circular.

8. A humidification chamber according to any one of claims 1 to 7, wherein the complementary aperture in the base surface of the water tub is circular.

9. A humidification chamber according to any one of claims 1 to 8, wherein the main contact surface is circular.

10. A humidification chamber according to any one of claims 1 to 9, the main contact surface protrudes or extends beyond the surrounding portion of the base of the water tub.

11. A humidification chamber according to any one of claims 1 to 10, wherein the heater plate is metallic.

12. A humidification chamber according to claim 11, wherein the heater plate is aluminium.

13. A humidification chamber according to claim 11 or claim 12, wherein the heater plate is pressed or shaped from sheet metal.

14. A humidification chamber according to any one of claims 1 to 13, wherein the main contact surface is flat.

15. A humidification chamber according to any one of claims 1 to 13, wherein the main contact surface is outwardly domed or convex.

16. A humidification chamber according to any one of claims 1 to 13, wherein the main contact surface is configured to, in use, contact a heater pad of a humidifier.

17. A humidification chamber according to claim any one of claims 1 to 14, wherein the lid is hingedly coupled to the water tub, and is moveable between a closed position in which the water tub is closed by the lid and an open position in which the water tub is open.

18. A humidification chamber according to claim 15, further comprising one or more operable clips for securing the lid in the closed position.

19. A humidification chamber according to any one of the preceding claims, wherein the lid and water tub are hingedly coupled by a living hinge and are integrally formed as a single item.

20. A humidification chamber according to any one of the preceding claims, wherein the gases inlet and gases outlet are provided on the lid.

21. A humidification chamber according to claim 20, wherein the gases inlet and gases outlet are provided on opposite sides of the lid.

~~3. A humidification chamber according to claim 1 wherein the inlet conduit is displaced away from an underside of the top of the lid.~~

~~4. A humidification chamber according to any one of the preceding claims wherein the lid comprises a main body portion which forms the top of the lid and humidification chamber, and a perimeter wall that extends downwardly from the main body portion.~~

~~5. A humidification chamber according to claim 4 wherein the gases inlet comprises an inlet aperture in the perimeter wall of the lid, and wherein the inlet conduit extends between its inlet end located at the inlet aperture of the perimeter wall of the lid and terminates at the outlet end located toward a central zone of the lid.~~

~~6. A humidification chamber according to claim 4 or claim 5 wherein the perimeter wall of the lid is substantially vertical, and the inlet conduit extends in a substantially horizontal direction relative to the perimeter wall of the lid.~~

~~7. A humidification chamber according to any one of the preceding claims wherein the lid and water tub are hingedly coupled by a living hinge.~~

~~8. A humidification chamber according to any one of the preceding claims wherein the lid is hingedly coupled to the water tub so as to be pivotable about a hinge located at a rear of the water tub.~~

~~9. A humidification chamber according to claim 8 wherein the hinge is a single elongate living hinge that extends along a portion of the rear of the water tub.~~

~~10. A humidification chamber according to claim 8 wherein a plurality of hinges are provided.~~

~~11. A humidification chamber according to any one of the preceding claims wherein the lid is formed from rigid plastic.~~

~~12. A humidification chamber according to any one of the preceding claims wherein the water tub is formed of rigid plastic and comprises a base and a perimeter wall that extends upwardly from the base, and wherein the base is provided with a heater plate.~~

~~13. A humidification chamber according to any one of the preceding claims further comprising one or more operable clips for securing the lid in a closed position, wherein the one or more operable clips comprise at least one operable clip that is provided on either the lid or water tub and which is configured to engage with a complementary catch provided on either the water tub or lid, respectively.~~

~~14. A humidification chamber according to claim 13 wherein the one or more operable clips are pivotably mounted to the lid.~~

~~15. A humidification chamber according to claim 14 wherein the one or more operable clips are integrally coupled to the lid via a living hinge.~~

~~16. A humidification chamber according to any one of the preceding claims wherein the lid comprises a main body portion which forms the top of the lid and humidification chamber,~~

~~and a perimeter wall that extends downwardly from the main body portion, and wherein the gases outlet comprises an outlet aperture in the perimeter wall of the lid, and wherein the outlet conduit extends between its outlet end located at the outlet aperture of the perimeter wall of the lid and terminates at its inlet end located toward a central zone of the lid.~~

~~17. A humidification chamber according to claim 16 wherein the perimeter wall of the lid is substantially vertical, and the outlet conduit extends in a substantially horizontal direction relative to the perimeter wall of the lid.~~

~~18. A humidification chamber according any one of the preceding claims wherein the water tub comprises a base surface and a perimeter wall that extends upwardly from the base.~~

~~19. A humidification chamber according to claim 18 further comprising a step formation about an inner surface of the perimeter wall of the water tub, the step formation being configured at a height above the base surface of the water tub corresponding to a maximum fill line indicator.~~

~~20. A humidification chamber according to claim 18 or claim 19 wherein the perimeter wall of the water tub comprises one or more reinforced regions.~~

~~21. A humidification chamber according to any one of the preceding claims wherein the gases inlet and gases outlet are provided on opposite sides of the lid.~~

~~22. A humidification chamber according to any one of the preceding claims wherein the lid comprises one or more water fill apertures and at least one water fill aperture comprising an associated maximum water level indicator comprising a tab member that is supported from the underside of the lid such that it extends into the field of view of the interior volume of the humidification chamber visible directly through the water fill aperture.~~

~~23~~22. A system comprising:

a humidification chamber according to any one of the preceding claims; and

a respiratory assistance device configured to provide a heated and humidified gases stream, wherein the respiratory assistance device ~~comprising~~comprises:

a device gases inlet configured to receive a supply of gases;

a blower configured to generate a pressurised gases stream from the supply of gases;

a humidifier configured to heat and humidify the pressurised gases stream;

a device gases outlet for the heated and humidified gases stream; and

a flow path for the gases stream through the respiratory device from the device gases inlet though the blower unit and humidification unit to the device gases outlet,

~~and~~ wherein the humidifier comprises a ~~sealable~~ humidification compartment that is configured to removeably receive and retain ~~a~~ the ~~removable~~ humidification chamber ~~according to any one of the preceding claims~~.

~~24. A respiratory assistance device according to claim 23 wherein the humidification compartment comprises a lid that is movable between an open position to enable removal of the humidification chamber and a closed position to seal the humidification chamber within the humidification compartment.~~

~~25. A respiratory assistance device according to claim 23 or claim 24 wherein the humidification compartment comprises a gases inlet connected to the flow path to receive the pressurised gases stream from the blower to create a pressurised humidification compartment and a gases outlet connected to the device gases outlet of the flow path.~~

~~26. A respiratory assistance device according to claim 25 wherein the gases inlet of the humidification chamber is open within the humidification compartment to receive an incoming flow of gases from within the pressurised humidification compartment.~~

~~27. A respiratory assistance device according to claim 25 or claim 26 wherein the gases outlet of the humidification compartment is sealingly connected to the gases outlet of the humidification chamber.~~

~~28~~23. A ~~respiratory assistance device~~system according to ~~any one of~~ claim~~s~~ ~~23-27~~22, wherein the humidification compartment comprises a heater pad upon which the humidification chamber sits.

~~29. A respiratory device according to any one of claims 23-28 wherein the device is contained within a single housing.~~

~~30~~24. A ~~respiratory device~~system according to ~~any one of~~ claim~~s~~ ~~23-29~~22 or claim 23, wherein the device is a CPAP respiratory device.

25. A system according to any one of claims 22 to 24, further comprising a gases conduit in fluid communication with the device gases outlet.

26. A system according to claim 25, further comprising a user interface in fluid communication with the gases conduit, the user interface configured to deliver the flow of gases to a patient.

27. A system according to claim 26, wherein the user interface is a nasal mask.

28. A system according to claim 26, wherein the user interface is a nasal cannula.