154 can be attached either to the blower inlet or outlet without limitation

[0070] In case the second filter **154** is not used, the blower expels air even during inhalation. Therefore, ambient air does not enter into the respirator body **102** as the blower continuously expels the air.

[0071] **FIG. 9** shows a second embodiment that implements one way control valve, using a membrane **152**. The membrane **152** allows air to flow out through the blower outlet **232**, but prevents air from entering in the reverse direction. The membrane **152** is attached to the blower outlet **232** by utilizing a fastener **150**. It is understood that a variety of mechanical means allow the membrane to be held over the blower outlet **232**. It should be noted that the one way control valve with a membrane can be attached either to the blower inlet or outlet without limitation.

[0072] **Fig 10** shows another embodiment wherein the active venting system **108** is attached to a latch **601** with help of a latch holder **602** to prevent the ambient air from entering the respirator body **102**. The latch **601** is embedded with a sensor that automatically closes when the power of the active venting system **108** runs out. Also if required the user can manually operate the latch **601** to close to block the blower opening. It should be noted that the latch **601** can be attached either to the blower inlet or outlet without limitation.

[0073] From the above, it should be noted that the air guide **106,** positioned at the bottom of the respirator body **102,** along with the active venting system **108** creates a dedicated pathway for exhaled air to be effectively vented from the respirator body **102**. In fact, dedicated pathways are formed due to the described positioning of the filters **104**, air guide **106** and active venting system **108**. Inhaled air flows through a region separate from the exhaled air and does not mix with the exhaled air forming separate air zones.

[0074] Further, the active venting system **108** can be adapted and attached onto

CLAIMS

What is claimed is:

1. An active venting system for venting air from a device covering mouth and nose, said active venting system comprises a housing, wherein the housing comprises:
a power source;
a blower coupled to the power source; and
an electronic device or a printed circuit board coupled to the blower,
wherein the blower is turned on or off by the electronic device or printed circuit board to vent exhaled or dead air from the device,
wherein the blower allows active air exchange and to vent air from within the device.

2. The active venting system of claim 1, wherein the blower is a micro-fan.

3. The active venting system of claim 1, wherein the electronic device or the printed circuit board triggers suitable control signals for the blower to regulate the speed and amount of airflow.

4. The active venting system of claim 1, wherein the active venting system remains turned on throughout the period of use.

5. The active venting system of claim 1, wherein the power source is a detachable and chargeable power source.

6. The active venting system of claim 1, wherein the power source is supplied by means of an electrical wire or cable to the electrical mains.

7. The active venting system of claim 1, wherein the power source can be recharged via a USB-micro cable to a power bank while the active venting system is still operating.

8. The active venting system as claimed in any of the preceding claims, wherein the devices are units coverings face and mouth such as protective gears and respiratory devices.

9. The active venting system of claim 1, wherein the power source can be charged while the active venting system is in use.

10. A respiratory device comprising:

a respirator body which covers face and mouth of a wearer to form a relatively closed area sealed from ambient air;

at least one first filter integrally disposed in the respirator body for filtering inhaled air; and

at least one active venting system according to claim 1, wherein the active venting system is functionally coupled to the respirator body.

11. The respiratory device of claim 10, further comprising at least one air guide positioned around the active venting system and surrounding the nose and mouth region of wearer to channel and separate exhaled air and inhaled air.

12. The respiratory device of claim 11, wherein the air guide is positioned at an angle inclined with respect to an ergonomic facial profile to remove excess exhaled air.

13. The respiratory device of claim 11 or 12, further comprising at least one gap between the air guide and the base of the respirator body to allow excess exhaled air to escape in case the excess exhaled air is not vented through the active venting system.

14. The respiratory device of any of claims 10 to 13, wherein the active venting system is attached to a one way control valve with a membrane to prevent ambient air from entering through the blower inlet or outlet into the respirator body at all times.

15. The respiratory device of claim 14, wherein the one way control valve with the membrane is attached either to an inlet or outlet of the blower.

16. The respiratory device of any of the claims 10 to 15, wherein the active venting system is attached to a second filter to prevent ambient air from entering the respirator body.

17. The respiratory device of any of the claims 10 to 16, wherein the active venting system is attached to a latch to prevent ambient air from entering the respirator body.

18. The respiratory device of claim 17, wherein the latch is embedded with a sensor that automatically closes when the power of the active venting system runs out.

19. The respiratory device of claim 17, wherein the latch is manually closed by a user to block the blower opening.

20. The respiratory device of any of the claims 11 to 19, wherein the respirator body, the active venting system and the air guide are together collapsible into a pocket size.

21. The respiratory device of any of the claims 11 to 20, wherein the respirator body is any one of the following: an air filtering respirator; an air purifying respirator; a disposable or reusable mask; a non-disposable mask; or an escape hood.