release mechanism, slider and groove engagement, locking pin, locking clip and mechanical hook and loop fastener.

Preferably the personal protection respiratory device is selected from a group consisting of disposable, reusable, half mask, full face, particulate, gas and vapour and tight-fitting hood respirators.

The blower may further be operable at a volumetric flow rate of between 0 to 180 litres per minute.

Preferably the blower is operable to reduce the pressure inside the personal protection respiratory device by at least 150 Pa at the peak exhalation flow rate of the wearer.

Further the blower is operable to reduce the temperature inside the personal protection respiratory device by at least about 1°C to 3°C.

The blower may further be operable to reduce the rebreathed carbon dioxide level inside the personal protection respiratory device by up to about 0.7%.

The exhaust apparatus may further comprise a portable power supply for the blower, the portable power supply being integrally mounted with the blower.

Further the exhaust apparatus further comprises a portable power supply for the blower, the portable power supply being remotely positionable on the wearer.

Preferably the blower is in fluidic connection with at least one exhalation valve via a breathing hose, tube, pipe, duct or channel.

The exhaust apparatus may further comprise a secondary exhalation valve positioned between the inlet of the blower and the motor fan assembly.

Further the secondary exhalation valve is integrally formed with the exhaust apparatus.

Preferably the secondary exhalation valve comprises a valve seat that includes a seal surface and a flexible flap.

Another aspect of the present invention also provides an exhaust apparatus which draws filtered air out of the enclosed space between the inside of a filtering respirator and a wearer through an exhalation valve to an output, the exhaust apparatus releasably connected to the filtering respirator.

Another aspect of the present invention also provides an exhaust apparatus for releasable connection to a personal protection respiratory device that defines a filtered air volume adjacent to the face of a wearer and comprises at least one exhalation valve, the apparatus comprising:

a blower in fluid connection with the at least one exhalation valve and located downstream of the at least one exhalation valve, the blower being operable to expel a portion of the filtered air through the at least one exhalation valve to an output.

Another aspect of the present invention also provides a respirator, comprising:

a mask body that comprises a filtering system, the mask body being dimensioned to define a filtered air volume adjacent to the face of a wearer, the mask body further comprises at least one exhalation valve for allowing exhalation of the wearer's exhaled breath; and

a powered blower in releasable, fluid connection with the at least one exhalation valve, the blower being operable to draw a portion of the wearer's exhaled breath through the at least one exhalation valve to an output.

The respirator may further comprise an air distribution manifold in fluid connection with the filtering system.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will now be described by way of example only, and with reference to the accompanying drawings, in which:

Figure 1 is an exploded view of an exhaust apparatus 10 according to the present invention for releasable connection to a personal protection respiratory device 20;

Figure 2 shows a front side perspective view of the exhaust apparatus 10 of Figure 1 connected to the personal protection respiratory device 20;

Figure 3a is a cross-sectional side view of the exhaust apparatus 10 taken along the dashed line A'-A" in Figure 6;

Fig. 3b is a cross-sectional side view of the exhaust apparatus 10 taken along the dashed line A'-A" in Figure 6 showing the position of an optional adapter 11;

Figure 4 illustrates a sectional side view of the exhaust apparatus 10 being operable to draw a portion of the wearer's 100 exhaled breath through a exhaust valve 26 on the personal protection respiratory device 20;

Figure 5 is a side view of the exhaust apparatus 10 of Figure 1 connected to the personal protection respiratory device 20;

10. The exhaust apparatus as claimed in claim 1, wherein the blower is operable to reduce the temperature inside the personal protection respiratory device by at least about 1°C to 3°C.

11. The exhaust apparatus as claimed in claim 1, wherein the blower is operable to reduce the rebreathed carbon dioxide level inside the personal protection respiratory device by up to about 0.7%.

12. The exhaust apparatus as claimed in claim 1, further comprising a portable power supply for the blower, the portable power supply being integrally mounted with the blower.

13. The exhaust apparatus as claimed in claim 1, further comprising a portable power supply for the blower, the portable power supply being remotely positionable on the wearer.

14. The exhaust apparatus as claimed in claim 1, wherein the blower is in fluidic connection with at least one exhalation valve via a breathing hose, tube, pipe, duct or channel.

15. The exhaust apparatus as claimed in claim 2, further comprising a secondary exhalation valve positioned between the inlet of the blower and the motor fan assembly.

16. The exhaust apparatus as claimed in claim 15, wherein the secondary exhalation valve is integrally formed with the exhaust apparatus.

17. The exhaust apparatus as claimed in claim 15, wherein the secondary exhalation valve comprises a valve seat that includes a seal surface and a flexible flap.

18. An exhaust apparatus which draws filtered air out of the enclosed space between the inside of a filtering respirator and a wearer through an exhalation valve to an output, the exhaust apparatus releasably connected to the filtering respirator.

19. An exhaust apparatus for releasable connection to a personal protection respiratory device that defines a filtered air volume adjacent to the face of a wearer and comprises at least one exhalation valve, the apparatus comprising:

a blower in fluid connection with the at least one exhalation valve and located downstream of the at least one exhalation valve, the blower being operable to expel a portion of the filtered air through the at least one exhalation valve to an output.

20. A respirator, comprising:

a mask body that comprises a filtering system, the mask body being dimensioned to define a filtered air volume adjacent to the face of a wearer, the mask body further comprises at least one exhalation valve for allowing exhalation of the wearer's exhaled breath; and

a powered blower in releasable, fluid connection with the at least one exhalation valve, the blower being operable to draw a portion of the wearer's exhaled breath through the at least one exhalation valve to an output.

21. The respirator as claimed in claim 20, further comprising an air distribution manifold in fluid connection with the filtering system.