

VENTILATOR AND ASSOCIATED METHOD THEREOF

TECHNICAL FIELD

The present disclosure relates to ventilators and more particularly to a ventilator for providing a stream of clean air that can be directed onto the nostril and mouth of a user and constitutes the “AirSpirator” product line.

BACKGROUND

The quality of the air we breathe in has deteriorated significantly since the time of the industrial revolution of the 1700s. The sources of polluted air may be man-made or from natural sources. Man-made polluted air includes toxic gases caused by the burning of fuels and other air borne products of industrial activities and modern living such as exhaust gas from vehicles. Natural sources of polluted air may include pollen from plants and trees as well as particulates floating in the air. Germs and other harmful microorganisms present in the air also form part of the polluted air we breathe.

One of the most common and evident type of air pollution is smoke and dust. Smoke inhalation causes irritation as a result of carbon monoxide, hydrogen cyanide and other combustion products inhalation. Dust, smoke and other dry particles from farming, traffic, industry and wildfires may further combine to form haze. Haze impairs visibility and may become a respiratory health threat. Since the early 1990s, haze has been a particularly acute problem in Southeast Asia mainly caused by seasonal fires occurring in Sumatra and Borneo when farmers burnt trees and plants to clear land. For example, Singapore experienced a record high pollution level, with the 3-hour Pollution Standards Index (PSI) reaching a record high of 401 in 2013 [source: Wikipedia].

To prevent the excessive inhalation of haze or smoke, people typically wear masks when outdoors during the haze “season”. These masks are simple, light-weight paper-thin filters usually shaped to cover the user’s nose and mouth when outdoors. For example, the most common of these masks is the disposable white N95 variety. The masks are discarded after a period or a single use. The masks act as mechanical filters to retain particulate matter when contaminated air is passed through the filter material. Innovative suppliers have created stylish and decorative designs to sell to users. Since the filters cannot be cleaned and reused,

the masks have a limited lifespan. Long term cost and disposability are therefore key factors when using these masks.

In severe cases of air pollution or even air poisoning, a respirator may be used to protect the wearer from inhaling harmful dusts, fumes, vapors, or poisoned gases. These respirators can come in a wide range of types and sizes used by the military, private industry, and the public. The respirators may include a filter element and an alternative supply of fresh air. Modern respirators may even include a bag worn over the head through which a window is used for the wearer to see through. An air tank has to be carried by the wearer to supply the necessary breathing air. Alternatively, the respirator may include an air purifying device which may be in various forms to capture and hold clean air. As can be envisioned by one skilled in the art, the respirator as described here are costly, burdensome and not suitable for common daily use.

Using a conventional mask or respirator will further require the use of at least a strap to hold the mask or respirator over the nose and mouth therefore obstructing the face from view. A pretty face coupled with an expensive hairdo will thus be ruined if the user has to put on any of these respiratory devices not to mention the discomfort of the masks when pressed into the face of the user. Breathing through a mask takes quite an effort and most people would avoid wearing one as it is most uncomfortable and even unhygienic after prolonged usage. Disposal of such masks is also an environmental hazard, en-masse.

None of the afore-mentioned devices provide users with a means to breathe in clean air while retaining comfort and remain fashionable and trendy when outdoors or on the move.

In view of the foregoing problems, a need remains for an apparatus that can overcome the above-noted shortcomings. The non-limiting exemplary embodiments of this disclosure satisfy such a need by providing a fashionable and trendy ventilator for providing a stream of clean air to be directed onto the nose and mouth of a user.

SUMMARY

In view of the foregoing background, it is therefore an object of the non-limiting exemplary embodiments to provide a ventilator for directing a stream of clean air onto the nostril and

mouth of a user.

In accordance with one aspect of this disclosure, there is disclosed a ventilator for directing a stream of clean air towards the nostril and mouth of a user. The ventilator may include an anchoring structure having a first air channel, an air purifying unit where through air is drawn and an air ejector having a second air channel for ejecting a stream of air drawn through the air purifying unit. The anchoring structure may support the air purifying unit and the air ejector in a balanced state on the head and ears of the user. The air ejector and the anchoring structure may further be configured into a fashion accessory.

In accordance with one embodiment of this disclosure, the air purifying unit may include an ionizer, a microfilter; a nanofilter; an impeller; an electrical system; and a housing configured for the aforementioned components to be in fluid communication with each other.

In accordance with one embodiment of this disclosure, the electrical system may include a solar charger in electrical communication with a solar panel, a USB charger and a rechargeable battery in electrical communication with the solar charger and the USB charger. The rechargeable battery may be used to supply electrical power the ionizer; a motor coupled to the impeller; and a variable speed controller for controlling the motor.

In accordance with one embodiment of this disclosure, the air ejector may include a flexible elongated tubular structure for receiving clean air from the air purifying unit; and a nozzle for directing clean air onto the nostril and mouth of the user.

In accordance with one embodiment of this disclosure, the anchoring structure may be adapted to be fitted onto a substantial portion of the user's head.

In accordance with one embodiment of this disclosure, the anchoring structure; the air purifying unit; the air ejector; and the first and second air channels may be in fluid communication with each other and be connectable via air sealing mechanisms which may include at least an air joint.

[1st design] In accordance with one embodiment of this disclosure, the anchoring structure

may be mated to an air connector. A suction cup may be mated to a proximal side of the air connector for securing the air connector to a side of the user's head. The air connector may further be mated to an extension member housing the air purifying unit and the air ejector such that the air connector defines a chamber in fluid communication with the air purifying unit and the air ejector.

[2nd design] In accordance with one embodiment of this disclosure, the anchoring structure may be mated to a housing of the air purifying unit. The housing may further form a substantially arcuate shape structure for positioning over a user's ear. The housing may further define a chamber that is in fluid communication with the air purifying unit and the air ejector.

[3rd design] In accordance with one embodiment of this disclosure, the anchoring structure may include at least one flexible strip for positioning around the users head. The air purifying unit may be attached to a pre-selected one of the flexible strip. The air purifying unit may further be in direct fluid communication with the air ejector.

[4th design] In accordance with one embodiment of this disclosure, the anchoring structure may include an I-shaped frame having an upper extending member and a lower extending member. A pair of arcuate shaped arms may protrude from each of left and right ends of the upper extending member for positioning over the ears of the user. Each of the left and right ends of the lower extending member is adapted to be in fluid communication with the air ejector.

[5th design] In accordance with one embodiment of this disclosure, the anchoring structure may include an arcuate-shaped frame having a recessed area at a central portion for accommodating the air purifying unit and a perforated cover for protecting the recessed area. The air ejector may further be rotatably connected to the arcuate-shaped frame.

In accordance with another aspect of this disclosure, there is disclosed a method of fabricating a ventilator for directing a stream of clean air towards the nostril and mouth of a user. The method may include: providing an anchoring structure having a first air channel; providing an air purifying unit wherethrough air is drawn; providing an air ejector having a

second air channel for ejecting a stream of air drawn through the air purifying unit; configuring the air ejector and the anchoring structure into a fashion accessory; and supporting the air purifying unit and the air ejector in a balanced state by the anchoring structure on the head and ears of the user.

Advantages of the invention

The invention advantageously provides a stream of clean air to be directed onto the nostril and mouth of the user. The apparatus provides a practical means of preventing polluted air from being breathed in or ingested by the user by replacing the polluted air that the user is exposed to in a polluted environment.

The invention is convenient and easy to use, lightweight yet durable in design, versatile in its applications, and designed for the user to wear like a fashion accessory, thus encouraging users to wear the apparatus without having to worry about his/her appearance in public.

Most importantly, the invention and embodiments thereof enables commuters to be encapsulated from exposure to polluted environment in an unobtrusive manner. Unlike conventional mask-based approaches, the invention does not introduce a physical structure that has to be positioned over and adjacent specific areas of the face, specifically over the mouth and nose, in order for a pollutant barrier to be formed. By forming an envelope over the mouth and nose in the form of an air bubble of clean and substantially purified air, hindrance to normal daily lifestyle activities such as having a conversation via ones mobile phone, enjoying a cuppa and a meal in an alfresco setting, and wearing UV-blocking sunglasses is alleviated.

The invention may be configured in a variety of aesthetic designs to be worn like a pair of spectacle frames, microphone headset or even like a baseball cap, comfortably and further be easily removed, cleaned and stowed when not in used. The apparatus thus advantageously provides clean air to the user as well as act as a wearable fashion accessory that can be worn by the fashion conscious when in a polluted air environment.

There has thus been outlined, rather broadly, the more important features of this disclosure in order that the detailed description thereof that follows may be better understood, and in order

that the present contribution to the art may be better appreciated. There are additional features of this disclosure that will be described hereinafter and which will form the subject matter of the claims appended hereto.

DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

Embodiments of the disclosure are described hereinafter with reference to the following drawings, in which:

FIG. 1 shows a partial system diagram of a ventilator comprising an air purifying unit and an air ejector in accordance with an aspect of the invention;

FIG. 2 shows a partial system diagram of an electrical system of the ventilator of FIG. 1;

FIG. 3 shows a partial electrical schematic diagram of the electrical system of FIG. 2;

FIG. 4 shows a partial side view of the ventilator of FIG. 1 adapted into a first exemplary design having an elongated tubular structure supporting the air ejector;

FIG. 5 shows a partial side view of the air purifying unit of FIG. 1 being housed in a cartridge according to the first exemplary design of FIG. 4;

FIG. 6 shows a partial rear perspective view of the ventilator of FIG. 1 being adapted into a second exemplary design having a housing for containing the air purifying unit;

FIG. 7 shows a partial front perspective view of the ventilator of FIG. 1 being adapted into a third exemplary design having a flexible strip for supporting and articulating the air ejector;

FIG. 8 shows a partial side view of the ventilator of FIG. 1 being adapted into a fourth exemplary design having arcuate arms for wrapping around a portion of the head of the user;

FIG. 9 shows a partial rear perspective view of an I-shaped frame of the ventilator of FIG. 1 adapted into the fourth exemplary design of FIG. 8;

FIG. 9 shows a partial side view of the ventilator of FIG. 1 being adapted into a fifth exemplary design having an arcuate frame; and

FIG. 10 shows a partial rear perspective view of the arcuate frame of the ventilator of FIG. 1 adapted into the fifth exemplary design of FIG. 9.

Those skilled in the art will appreciate that the figures are not intended to be drawn to any particular scale; nor are the figures intended to illustrate every embodiment of the invention. This disclosure is also not limited to the exemplary embodiments depicted in the figures or the shapes, relative sizes or proportions shown in the figures.

DETAILED DESCRIPTION

The non-limiting exemplary embodiments will now be described more fully hereinafter with reference to the accompanying drawings. This invention may however, be embodied in many different forms and shapes and should not be construed as limited to the embodiments set forth herein. Rather, these embodiments are provided so that this application will be thorough and complete, and will fully convey the true scope of the invention to those skilled in the art. Like numbers refer to like elements throughout the figures.

The present disclosure is a ventilator 20 shaped and formed to be worn comfortably as a fashion accessory in addition to providing a stream of clean air to be directed onto the nostril and mouth of a user 24. The apparatus provides a practical means of preventing polluted air from being breathed in or ingested by the user. The structure of the apparatus may be made from a variety of light-weight material such as plastics, alloys and smart materials.

Referring to the figures in general, the ventilator 20 may include an anchoring structure 26 having a first air channel 28, an air purifying unit 30 wherethrough air is drawn and an air ejector 32 having a second air channel 34 for ejecting a stream of air drawn through the air purifying unit 30. The anchoring structure 26 may support the air purifying unit 30 and the air ejector 32 in a balanced state on the head and ears of the user 24. The air ejector 32 and the anchoring structure 26 may further be configured into a variety of shapes and forms to be worn as a fashion accessory.

As shown in FIGS. 1 to 5, polluted air is first drawn into the air purifying unit 30 (by an impeller 40) and cleaned into cleaned air. The cleaned air from the air purifying unit 30 is then channeled from the first air channel 28 of the anchoring structure 26 to the second air channel 34 of the air ejector 32. Depending on the configuration, an air connector 44 or an air joint may be utilized to transfer the cleaned air from the air purifying unit 30 to the air ejector 32. The second air channel 34 enables the cleaned air from the air connector 44 to be channeled to a nozzle 46 of the air ejector 32. The interconnected components may include interconnecting joints which provide a means for adjusting the apparatus, the ventilator 20, on or adjacent to the head of the user 24. It is envisaged that conventional air sealing methods such as air joints are used to prevent leakage of air from the joints. The air channels 28/34 may be in the form of a tubular body enclosed within a hollow body, or be formed as an elongated cavity in the solid body of the anchoring structure 26 and the air ejector 32. The cross-sectional area of the first air channel 28 may be bigger than the cross-sectional area of the second air channel 34 to enable a higher pressure air stream to be formed at the air ejector 32.

Referring to FIGS. 1-5, the air purifying unit 30 may include an ionizer 50, a microfilter 52, a nanofilter 54, the impeller 40, an electrical system 56 and a housing 58 configured to enable the components to be in fluid communication with each other. A distal end of the air purifying unit 30 may be in fluid communication with the first air channel 28 which is also fluidly connected to the air ejector 32. The constituents of the air purifying unit 30 may be arranged in series or any other compact relationship with each other, thus forming a slim cylindrical or other compact shape but adaptable to the different configurations of the apparatus.

Referring to FIGS 2 & 3, the electrical system 56 of the air purifying unit 30 may include a solar charger 60 in electrical communication with a solar panel 62, a USB charger 64 and a rechargeable battery 66. The rechargeable battery 66 may be used for powering the ionizer 50 and a motor 68. A variable speed controller 70 may be used to control the motor 68 which is coupled to the impeller 40 for rotational displacement thereof. An on-off switch 78 may be provided to start and stop the air purifying unit 30.

Referring again to FIGS 4 & 5, the air ejector 32 may include a flexible elongated tubular

structure 80 for receiving the cleaned air from the air purifying unit 30 and the nozzle 46 for directing pressurized clean air onto the nostril and mouth of the user 24. The air ejector 32 body may include a bigger cross-sectional area at an end proximal to the air purifying unit 30 and a smaller or narrower cross-section at the distal nozzle end to provide the pressurized cleaned air at the nozzle 46.

Referring to FIGS. 4 & 5, the cross-section of the air ejector 32 may include a variety of shapes, for example, an oval shape, an elliptical shape, or a triangular shape and so on. The length of the air ejector 32 may further be varied to enable the user to adjust the nozzle to provide a comfortable stream of air jet onto his nostril and mouth of the user 24. One skilled in the art may easily envisage such an air ejector having an aesthetic appearance without compromising on the functional requirements of the apparatus.

As the air ejector forms an envelope over the mouth and nose in the form of an air bubble of clean and substantially purified air, one skilled in the art may easily envision users to be encapsulated from exposure to polluted environment in an unobtrusive manner without introducing a physical structure that has to be positioned over and adjacent specific areas of the face, specifically over the mouth and nose, in order for a pollutant barrier to be formed. One skilled in the art may further envisage such an air ejector having an aesthetic appearance without compromising on the functional requirements of the apparatus.

The nozzle 46 may further be configured as a separate component that can be detachably connected to the distal end of the air ejector 32 body or be an integral part of the air ejector 32. The nozzle 46 may be of an elongated shape and may include an array of apertures to enable the cleaned air to be ejected in an arc that is spreadable over the nostril and mouth of the user 24.

Referring to FIGS. 4 & 5, the anchoring structure 26 may be adapted to be fitted onto a substantial portion of the head of the user 24. Such a structure may be configured in a variety of shapes and sizes with a variety of materials for flexibility and resilience to conform to the shape of the head of the user 24. The anchoring structure 26 may further be adjustable for length in order to fit onto heads of different sizes.

Referring to FIGS. 4 & 5, the apparatus, the ventilator 20, may include a variety of configurations which is only limited to as far as the imagination of the skilled designer. The configurations described hereinbelow illustrates the ability of the invention to provide an aesthetic and fashionable look and feel to the user as well as at the same time, provide a lightweight structure from which the apparatus can be worn on the head of a user without adding discomfort and weight.

The ventilator 24 may be configured in a variety of shapes and forms, such as anchoring behind the head or behind the ears or strapped onto the head of a user 24. In this way, the air purifying unit may not appear obtrusive and may be adequately hidden from a frontal view of the user 24. The different configurations of the apparatus further enable the anchoring structure 26 and the air ejector 32 to appear stylish and fashionable when viewed from other angles by a viewer. As illustrated by the figures, the air ejector 32 may be designed to provide a slim and stylish appearance. The anchoring structure 26 may further be in the form of the user's 24 desired and wearable shape which can be comfortably worn and further be easily removed by the user 24 when not in use. As afore-mentioned, this fashionable and wearable apparatus may be configured in a variety of designs to be worn like a pair of spectacle frames, microphone headset or even like a baseball cap, comfortably and further be easily removed, cleaned and stowed when not in used. The apparatus thus advantageously provides cleaned air to the user as well as act as a wearable fashion accessory which can be worn by anyone when in a polluted air environment.

FIGS. 4 to 11 illustrate a few of the many possible design configurations of the apparatus.

[1st Design] In one configuration as best shown in FIGS. 4 & 5, the anchoring structure 26 may be directly mated to an air connector 44. In this configuration, the anchoring structure 26 may include a flexible elongated or flattish frame that can be bent to fit over a substantial portion of the head of the user 24. A suction cup 82 may be mated to a proximal side of the air connector 44 for securing it to a side of the head of the user 24. The air connector 44 may further be mated to an extension member 86 housing the air purifying unit 30 and the air ejector 32 such that the air connector 44 defines a chamber in fluid communication with the air purifying unit 30 and the air ejector 32. The air connector 44 may include a variety of hollow casings which allows the cleaned air to flow between the air purifying unit 30 and the

air ejector 32.

The extension member 86 may be fixedly connected to the air connector 44 or be molded as a unitary piece. The extension member 86 may include a third air channel which is fluidly connected to both the air purifying unit 30 and the air connector 44. The air purifying unit 30 may be housed in a stand-alone cartridge 90 with the arrangement of the ionizer 50, the microfilter 52, the nanofilter 54, the impeller 40 and the electrical system 56 as shown in FIGS. 4 & 5. A portion of the cartridge 90 may be threaded to detachably mate with a corresponding threaded portion of the extension member 86. Such a screw-on cartridge 90 may be easily disengaged for removing the air purifying unit 30 for cleaning or replacement purposes without the use of any tools. In this configuration, polluted air may be drawn into the air purifying unit 30 via a funnel shaped air intake 92 located at a distal end of the cartridge 90.

The cartridge 90 may in addition, be adapted to suit different configurations of the apparatus as shown in FIG. 5. In the other configurations, the cartridge 90 may for example, be easily clipped on and clipped off from the anchoring structure 26 as aforementioned. This arrangement enables the cleaned air to be directly linked to the second air channel 34 of the air ejector 32.

[2nd Design] In one configuration as shown in FIG. 6, the anchoring structure 26 may be mated to a housing 94 of the air purifying unit 30. In this configuration, the housing 94 may form a substantially arcuate shape structure for positioning over the ear of the user 24. The housing 94 may further define a chamber in fluid communication with the air purifying unit 30 and the air ejector 32.

The anchoring structure 26 may be directly mated to the housing 94 of the air purifying unit 30 and may be similar to the aforementioned configuration to include a flexible elongated or flattish frame that can be bent to fit over a substantial portion of the user's head. The air purifying unit 30 may be located behind the user's ear and in this way is hidden from the view of an onlooker. In this configuration, polluted air is drawn into the air purifying unit 30, cleaned and transited directly to the air ejector 32 where it may exit as an air stream via the

nozzle 46. The apparatus in this configuration is held in place by the housing of the air purifying unit 30 which is hung on the ear of the user 24 as shown in FIG. 6.

[3rd Design] In one design configuration as shown in FIG. 7, the anchoring structure 26 may include at least one flexible strip 96 for positioning around the users head. The air purifying unit 30 may be attached to a pre-selected one of the flexible strip 96 and may further be in direct fluid communication with the air ejector 32.

In this configuration, one of the flexible strips 96 may be fitted over a substantial portion of the user's head while another flexible strip 96 may be fitted behind the head. The flexible strips 96 may be made from nylon material or any other material well known in the art. Velcro strips may further be used to adjust the lengths of the strips to suit the size and profile of the user's head. Corresponding ends of the flexible strips 96 may be connected at an end-to-end relationship on oppositely sited location of the head. In this way, the air ejector 32 may be held in a balanced state by the flexible strips 96. The air purifying unit 30 may be detachably mated to an end of the flexible strips 96 and further be directly connected to the air ejector 32.

[4th Design] In one configuration as shown in FIGS. 8 & 9, the anchoring structure 26 may include an I-shaped frame 98 having an upper extending member 100a and a lower extending member 100b. A pair of arcuate shaped arms 102 may protrude from each of left and right ends of the upper extending member 100a for positioning over the ears of the user 24 such that each of the left and right ends of the lower extending member 100b is adapted to be in fluid communication with the air ejector 32.

In this configuration, the air purifying unit 30 may be mounted to a central portion of the frame 98 and the air ejector 32 may be located at either a left or a right end of the lower extending portion 100b of the I-shaped frame 98. The body of the frame 98 in this configuration may further include an air passage for fluid communication with the air purifying unit 30 and the air ejector 32. In this configuration the air purifying unit 30 is thus located behind the user's head and is therefore obscure from the view of any frontal onlooker.

[5th Design] In one configuration as shown in FIGS. 10 & 11, the anchoring structure 26 may

include an arcuate-shaped frame 104 having a recessed area 106 at a central portion for accommodating the air purifying unit 30. A perforated cover 108 may be included for protecting the recessed area 106. The air ejector 32 may further be rotatably connected to the arcuate-shaped frame 104.

In this configuration, the air purifying unit 30 may be inserted and fully encased within a cavity provided by the anchoring structure 26. In this arrangement of the air purifying unit 30 within the cavity, polluted air is drawn into the air purifying unit 30 via an array of apertures as shown in FIG. 1. The edges of the cover 108 may be configured to enable a clip-on engagement with a corresponding edge portion of the cavity so that air can be drawn into the air purifying unit 30 with a minimum of noise. Such a clip-on cover may further be easily disengaged for removing the air purifying unit 30 for cleaning or replacement of components without the use of any tools.

The invention may include a method of fabricating a ventilator for directing a stream of clean air towards the nostril and mouth of a user. Such a method may include the steps of: providing the anchoring structure 26 having the first air channel 28; providing the air purifying unit 30 wherethrough air is drawable; and providing the air ejector 32 having the second air channel 34 for ejecting a stream of air drawn through the air purifying unit 30; configuring the air ejector 32 and the anchoring structure 26 into a fashion accessory; and supporting the air purifying unit 30 and the air ejector 32 in a balanced state by the anchoring structure 26 on the head and ears of the user 24.

The method may further include the step of providing the air purifying unit 20 with: the ionizer 50; the microfilter 52; the nanofilter 54; the impeller 40; the electrical system 56; and the housing 58 configured for the ionizer 50, the microfilter 52, the nanofilter 54 and the impeller 40 to be in fluid communication with each other.

The method may further include the step of providing the electrical system with: the solar charger 60 in electrical communication with the solar panel 62; the USB charger 64; the rechargeable battery 66 in electrical communication with the solar charger 60 and the USB charger 64, the rechargeable battery 66 for powering the ionizer 50 and the motor 68; and the

variable speed controller 76 for controlling the motor 68, with the motor 68 being coupled to the impeller 40.

The method may further include the step of providing the air ejector 32 with the flexible elongated tubular structure 80 for receiving cleaned air from the air purifying unit 30; and a nozzle 46 for directing cleaned air onto the nostril and mouth of the user 24.

The method may further include the step of adapting the anchoring structure 26 to be fitted on a substantial portion of the user's head.

The method may further include the step of providing the anchoring structure 26, the air purifying unit 30, the air ejector 32 and the first and second air channels 28/34 to be in fluid communication with each other via air sealing means comprising at least an air joint.

While the invention has been described with respect to a certain specific embodiment, it will be appreciated that many modifications and changes may be made by those skilled in the art without departing from the spirit of the invention. It is intended, therefore, by the appended claims to cover all such modifications and changes as fall within the true spirit and scope of the invention. In particular, with respect to the above description, it is to be realized that the optimum dimensional relationships for the parts of the non-limiting exemplary embodiments may include variations in size, materials, shape, form, function and manner of operation.

CLAIMS

1. A ventilator for directing a stream of clean air towards the nostril and mouth of a user comprising:

an anchoring structure wearable on the head of the user away from the nostril and mouth of the user, the anchoring structure having:

an I-shaped frame having an upper extending member and a lower extending member, the I-shaped frame for positioning at a rear portion of the user's head; and

a pair of arcuate arms protruding from each of left and right ends of the upper extending member, the pair of arcuate arms for anchoring around the rear portion of the user's head and positioning above the user's ears;

an air purifying unit where through air is drawn, the air purifying unit fluidly communicable with and supported by the I-shaped frame; and

an air ejector fluidly communicable with the I-shaped frame and supported by the lower extending member of the I-shaped frame, the air ejector for ejecting a stream of air drawn through the air purifying unit,

wherein the air ejector and the anchoring structure are configured into a wearable accessory; and

wherein the anchoring structure supports the air purifying unit and the air ejector in a balanced state on the head and ears of the user.

2. The ventilator according to claim 1, wherein the air purifying unit comprises:

an ionizer;

a microfilter;

a nanofilter;

an impeller;

an electrical system; and

a housing configured for the ionizer, the microfilter, the nanofilter and the impeller to be in fluid communication with each other.

3. The ventilator according to claim 2, wherein the electrical system comprises:

a solar charger in electrical communication with a solar panel;

a USB charger;

a rechargeable battery in electrical communication with the solar charger and the USB charger, the rechargeable battery for powering the ionizer and a motor; and

a variable speed controller for controlling the motor, the motor being coupled to the impeller.

4. The ventilator according to claim 1, wherein the air ejector comprises a flexible elongated tubular structure for receiving clean air from the air purifying unit; and a nozzle for directing clean air onto the nostril and mouth of the user.

5. The ventilator according to claim 1, wherein the anchoring structure, the air purifying unit, and the air ejector are fluidly communicable with one another via at least an air channel and via air sealing means comprising at least an air joint.

6. The ventilator according to claim 1,
wherein each of left and right ends of the lower extending member is adapted to be in fluidly communicable with the air ejector.

7. A method of fabricating a ventilator for directing a stream of clean air towards the nostril and mouth of a user comprising:

providing an anchoring structure wearable on the head of the user away from the nostril and mouth of the user, the anchoring structure having:

an I-shaped frame having an upper extending member and a lower extending member, the I-shaped frame for positioning at a rear portion of the user's head; and

a pair of arcuate arms protruding from each of left and right ends of the upper extending member, the pair of arcuate arms for anchoring around the rear portion of the user's head and positioning above the user's ears;

providing an air purifying unit wherethrough air is drawn, the air purifying unit fluidly communicable with and supported by the I-shaped frame;

providing an air ejector fluidly communicable with the I-shaped frame and supported by the lower extending member of the I-shaped frame, the air ejector for ejecting a stream of air drawn through the air purifying unit;

configuring the air ejector and the anchoring structure into a wearable accessory; and

supporting the air purifying unit and the air ejector in a balanced state by the anchoring structure on the head and ears of the user.

8. The method according to claim 7, wherein the air purifying unit comprises:
 - an ionizer;
 - a microfilter;
 - a nanofilter;
 - an impeller;
 - an electrical system; and
 - a housing configured for the ionizer, the microfilter, the nanofilter and the impeller to be in fluid communication with each other.
9. The method according to claim 8, wherein the electrical system comprises:
 - a solar charger in electrical communication with a solar panel;
 - a USB charger;
 - a rechargeable battery in electrical communication with the solar charger and the USB charger, the rechargeable battery for powering the ionizer and a motor; and
 - a variable speed controller for controlling the motor, the motor being coupled to the impeller.
10. The method according to claim 7, wherein the air ejector comprises a flexible elongated tubular structure for receiving clean air from the air purifying unit; and a nozzle for directing clean air onto the nostril and mouth of the user.
11. The method according to claim 7, wherein the anchoring structure, the air purifying unit, and the air ejector are fluidly communicable with one another via at least an air channel and via air sealing means comprising at least an air joint.
12. The method according to claim 7,
 - wherein each of left and right ends of the lower extending member is fluidly communicable with the air ejector.