Ambient Air Device

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Abstract

An ambient air device configured to be worn about the wrist or to be affixed to a wristwatch. Embodiments enable an individual to conveniently activate the wrist ambient air device in order to limit the incursion of smoke or other offensive gaseous pollutants and contaminants into the individual’s environing airspace. Embodiments of this device use a portable fan assembly to enrich an individual’s ambient environment without causing a substantial disturbance to the airspace of adjacent or neighboring individuals. A plurality of lightweight, rigid or flexible fan blades may be actuated by a switch or the like which, in turn, activates a battery-operated motor for driving the plurality of fan blades that comprise the device. Other embodiments contemplate a plurality of lightweight, flexible fan blades affixed to a wristband or other external clothing accessory, suitably positioned to assure that an individual’s airspace is healthy and clean.
AMBIENT AIR DEVICE

RELATED APPLICATIONS

[0001] This application claims priority based upon Provisional U.S. Application Ser. No. 60/414,105 filed Sep. 27, 2002.

FIELD OF THE INVENTION

[0002] The present invention relates to an apparatus for circulating ambient air away from an individual's face and the like using a battery-operated plurality of fan blades disposed upon a wrist watch or other wrist or clothing accessory.

BACKGROUND OF THE INVENTION

[0003] There have been many efforts and attempts to rid the ambient air surrounding individuals of foreign substances such as smoke and pollutants. Air is crucial to the survival of the human race and clean air is obviously crucial to the proper operation and longevity of the human respiratory system.

[0004] As will be appreciated by those skilled in the art, one approach for promoting the influx of clean, uncontaminated air into the human respiratory system is to limit the amount and nature of volatile gaseous substances and other pollutants that are allowed to gain entry thereinto. Such limited entry, of course, is dependent upon the comparable amount and nature of volatile gaseous substances and other pollutants that are allowed to be emitted into and permeate the environment from a diversity of sources including chemical plants, refineries, motor vehicle exhausts, and the like. This approach, of course, is typically entangled in industry abuses, government regulation and political maneuvering that has prevented the realization of a pollution and contamination-free environment.

[0005] Another approach, more amenable to achieving the goal of people functioning in a pollution and contamination-free environment is to affirmatively prevent smoke and other pollutants from permeating ambient air. For instance, it has become prevalent in restaurants and other public places to prohibit smoking, thereby inherently assuring a smoke-free environment. Besides assuring that clean air will be the order of the day, such practices avoid fire hazards that obtain from smoking.

[0006] Yet another approach for helping achieve clean air goals is for public and commercial buildings to use exhaust fans and the like to eliminate unhealthy and otherwise offensive odors and the like from the ambient air. While helping reduce people's exposure to unhealthy air, such devices and techniques fail to engender a sufficiently healthy and safe environment for the public. It would be advantageous, however, if there were a device and means for an individual to conveniently and unobtrusively augment these heretofore insufficient approaches to limit his exposure to unhealthy and unsafe ambient air.

[0007] Accordingly, the present invention affords a means for enabling an individual to control his exposure to smoke and other pollutants in the ambient air while constituting minimal or no interference with the peaceful enjoyment of neighboring or adjoining individuals in public places or the like.

SUMMARY OF THE INVENTION

[0008] The present invention comprises a portable device having a fan accessory configured to be worn about the wrist or to be affixed to a sport-type wrist watch and the like. As will be hereinafter described, embodiments of the present invention enable an individual to conveniently activate the instant wrist ambient air cleaning device in order to limit the incursion of smoke or other offensive gaseous pollutants and the like into the individual's envircling airspace. As will be appreciated by those skilled in the art, the present invention contemplates the use of a wrist fan or a wristwatch fan assembly to enrich an individual's ambient environment without causing a substantial disturbance to environments of adjacent or neighboring individuals.

[0009] As will be hereinafter described, embodiments of the ambient air device of the present invention contemplate a plurality of lightweight, flexible fan blades affixed preferably to the top surface of a sports wrist watch or a wrist accessory or a suitable clothing accessory. The fan accessory may be actuated by a switch or the like which, in turn, activates a battery-operated motor or motor otherwise powered for driving a plurality of fan blades. Other embodiments of the instant device contemplate a plurality of lightweight, flexible fan blades affixed to a wristband or clothing accessory, with such accessory is comfortably attached to an individual's wrist or clothing garment.

BRIEF DESCRIPTION OF DRAWINGS

[0010] FIG. 1 depicts a top planar view of the preferred embodiment of the present invention, with a plurality of fan blades disposed in a closed position.

[0011] FIG. 2 depicts a side view of the embodiment depicted in FIG. 1, with the plurality of fan blades disposed in an open position.

[0012] FIG. 3 depicts a frontal view of the embodiment depicted in FIG. 2.

[0013] FIG. 4 depicts a rear view of the embodiment depicted in FIGS. 2-3.

[0014] FIG. 5 depicts a top planar view of another embodiment of the present invention, with a plurality of fan blades disposed in an open position.

[0015] FIG. 6 depicts a side view of the embodiment depicted in FIG. 5.

[0016] FIG. 7 depicts a frontal view of the embodiment depicted in FIGS. 5-6.

[0017] FIG. 8 depicts a rear view of the embodiment depicted in FIGS. 5-7.

DETAILED DESCRIPTION

[0018] The structures of the present invention depicted in the drawings comprise a combination of the operation of a conventional sports wrist watch or the like, and a portable ambient air device affixed preferably atop the face of the wrist watch. As will become clear to those skilled in the art, embodiments of the present invention are designed to provide sufficient air movement and circulation to force smoke and the like present in the ambient away from an individual's face, but without causing any safety hazards associated
with the simultaneous operation of a plurality of fan blades to either the individual, to adjacent or neighboring individuals, or to passers by.

[0019] More particularly referring to the figures shown in the drawings, FIGS. 1-4 depict wristwatch ambient air assembly 2 of the present invention depicting plurality of fan blades 10 affixed to conventional sports watch 100. Now referring specifically to FIG. 1, there is depicted a top planar view of wristwatch ambient air assembly 2 clearly showing each of fan blades 20A-H situated in a closed position. As will be understood by those skilled in the art, when this plurality of fan blades is caused to rotate in a conventional manner relative to axis 15 of wristwatch 100, each of fan blades 20A-H becomes situated in an open position. It will be evident to those skilled in the art that, although ambient air device 2 is depicted with eight fan blades, embodiments may be configured with any number of fan blades that accomplish the purposes of the present invention.

[0020] Referring now to FIG.2, there is depicted a side view of wristwatch ambient air assembly 2 depicted in FIG. 1, taught by the present invention showing wristband clamp means 150 used to secure wristband 130 to an individual’s wrist. Also shown are fan blades 20A and 20B of plurality of fan blades 10, which pivot about axis 15 fixedly attached atop watch face 140. Plurality of batteries 60 are contained within battery compartment 50 which is affixed to watchband 130 proximal to plurality of fan blades 10.

[0021] FIGS. 3 and 4 depict front and rear views, respectively, of ambient air device 2 depicted in FIGS. 1 and 2. In particular, FIG. 3 depicts a front view of wristwatch ambient air device 2 having time display 25 disposed upon watchband 130; shown are fan blades 20I and 20J of plurality of fan blades 10. Of course, it will be obvious to those skilled in the art that the time display may be disposed in any of several locations on wristwatch ambient air assembly 2 so long as it is functionally easily and conveniently viewable by the individual and doesn’t interfere with the normal operation of plurality of fan blades 10. Furthermore, it should also be evident that the time may be displayed in digital format or analog format, or, if space permits, in both formats. Similarly, FIG. 4 depicts a rear view of wristwatch ambient air assembly 2 having watchband 130, shown are fan blades 20B and 20D of plurality of fan blades 10.

[0022] It will be appreciated by those skilled in the art that the plurality of fan blades depicted in FIGS. 1-4 comprise relatively rigid blades. That is, such blades are preferably constructed from plastic material that tends to exhibit rigidity with only limited flexibility. On the other hand, the embodiment of the present invention depicted in FIGS. 5-8 is configured with a plurality of considerably larger fan blades that are constructed with plastic material that tends to manifest relatively soft and flexible blades.

[0023] More particularly referring to FIGS. 5-8, there is seen wristwatch ambient air assembly embodiment 2 of the present invention depicting plurality of fan blades 10 affixed to sports watch 100. Now referring specifically to FIG. 5, there is depicted a top planar view of wristwatch ambient air assembly 2 clearly showing each of fan blades 20A-B permanently disposed in an open position atop wristwatch face 140. As will be understood by those skilled in the art, this plurality of fan blades rotates in a conventional manner relative to axis 15 of wristwatch 100. It will be evident to those skilled in the art that, although embodiment 2 is depicted with two fan blades, embodiments of the instant ambient air device may be configured with any number of fan blades that accomplish the purposes of the present invention.

[0024] Referring now to FIG. 2, there is depicted a side view of wristwatch ambient air assembly 2, depicted in FIG. 1, taught by the present invention showing wristband clamp means 150 used to secure wristband 130 to an individual’s wrist. Also shown are fan blades 20A and 20B of plurality of fan blades 10, which pivot about axis 15 fixedly attached atop watch face 140. Plurality of batteries 60 are contained within battery compartment 50 which is affixed to watchband 130 proximal to plurality of fan blades 10.

[0025] FIGS. 3 and 4 depict front and rear views, respectively, of ambient air device 2 depicted in FIGS. 1 and 2. In particular, FIG. 3 depicts a front view of wristwatch ambient air assembly 2 having time display 25 disposed upon watchband 130; shown are fan blades 20A and 20B of plurality of fan blades 10. Of course, it will be obvious to those skilled in the art that the time display may be disposed in any of several locations on wristwatch ambient air assembly 2 so long as it is functionally easily and conveniently viewable by the individual and doesn’t interfere with the normal operation of plurality of fan blades 10. Furthermore, it should also be evident that the time may be displayed in digital format or analog format, or, if space permits, in both formats. Similarly, FIG. 4 depicts a rear view of wristwatch ambient air assembly 2 having watchband 130, shown are fan blades 20A and 20B of plurality of fan blades 10.

[0026] Several alternative embodiments of the present invention have been developed and tested. For example, a five-blade ambient air cleaning model configured with relatively short, rigid fan blades as depicted in FIGS. 1-4 and having a 3-volt AC motor generated sufficient fan capabilities using two AAA batteries for power. As another example, a two-blade ambient air cleaning model configured with relatively elongated soft, flexible fan blades as depicted in FIGS. 5-8 and having a similar 3-volt AC motor powered by two AAA batteries also generated sufficient fan capabilities. As yet another example, a three-blade, high-performance ambient air cleaning model configured with relatively elongated soft, flexible fan blades as depicted in FIGS. 5-8 and having a 4.5-volt AC motor powered by two AAA batteries generated powerful fan capabilities to thoroughly disperse smoke and the like from being proximal to an individual’s airspace. It has been observed that acceptable ambient air circulation and movement have been obtained from 3-volt motors which generate approximately 8300 RPMs at no load.

[0027] Embodiments of the present invention have been designed to include preferably integrated switch means for controlling the application of battery power to, first, control whether or not the fan blades are operational, and, second, to regulate the rotational speed of the plurality of fan blades. Of course, it will be readily appreciated by those skilled in the art that the simplest form of switch means that may be incorporated into embodiments of the present invention comprise a toggle that may either be situated in the “off” or “on” position. Preferred embodiments of the present invention contemplate a switch means capable of being situated into a plurality of positions including “off,” and variable
It will be also be appreciated by those skilled in the art that another embodiment of the present invention comprises a combination of plurality of fan blades and concomitant motor affixed to a wristband or the like. That is, instead of necessarily affixing a portable ambient air cleaning assembly to a wristwatch, it is also contemplated that such a portable ambient air cleaning assembly may be adapted to be attached to a suitably wristband or the like. Of course, it is also contemplated that the portable ambient air cleaning assembly taught by the present invention may be configured as a stick-pin or other comparable clothing appurtenance that enables an individual’s airspace to be rendered clean and healthy under the influence of a plurality of fan blades. It should also be clearly understood that the plurality of fan blades comprising the portable ambient air cleaning device of the present invention may be powered not only by battery-operation but also may be powered by alternative sources of power—that may be conveniently and readily applied by an individual—such as solar power.

An important aspect of embodiments of the present invention is that while the plurality of fan blades are rotationally operational proximal to an individual—his hands, arms, and/or face—blade rotation may be routinely and harmlessly ceased by the individual’s finger or otherwise when contact is made with a body part such as the face or forearm.

It should also be apparent to those conversant in the art that embodiments of the present invention may be construed to satisfy prerequisite requirements especially under unusual or exigent conditions. Such conditions would be experienced if particular users will be confined to congested areas having limited influx of fresh air over protracted periods of time or to areas having virtually minimal or no circulation. Such special embodiments would then be designed to achieve optimal air movement and circulation that is delivered to the individual wearer. As will be appreciated by those skilled in the art, design factors would include fan blade pitch, number of fan blades, fan blade size, fan motor RPM rating, and power consumption prerequisite for operation. Obviously, another factor would be the number and type of batteries, in turn, prerequisite for achieving the power for continuous operation of such embodiments. It should be understood that, under circumstances in which essentially every individual present in a fixed space wears and operates an embodiment of the present invention, even for such space inherently having limited or no air circulation, per se, should tend to provide sufficient air circulation thereto. Accordingly, a housing containing a plurality of fan blade members and driving motor means contemplated by the present invention may be affixed to not only a wrist watch or wrist band member, but also may be attached to any suitable base such as an ornamental stickpin support or other decorative clothing accessory or the like.

It is to be understood that the present invention is not limited to the embodiments described above, but encompasses structural variations consistent with its teachings. Thus, any portable structure that affords sufficient fan-generated ambient air cleaning power to drive smoke and contaminants away from an individual’s airspace, and which simultaneously functions in a safe and quite manner in public scenarios or the like, is contemplated to assure that an individual’s ambient air is sufficiently healthy to gain entry into the human respiratory system.

Other variations and modifications will, of course, become apparent from a consideration of the structures and techniques hereinbefore described and depicted. Accordingly, it should be clearly understood that the present invention is not intended to be limited by the particular features and structures hereinbefore described and depicted in the accompanying drawings, but that the present invention is to be measured by the scope of the appended claims herein.

What is claimed is:

1. For an individual situated in an environment having ambient air permeated with smoke and other offensive gaseous pollutants, in combination with a wrist watch worn upon said individual’s wrist, a portable wrist ambient air apparatus comprising:
   a body member disposed adjacent said wrist watch and affixed thereto, and including a power source compartment;
   a portable power source contained within said power source compartment;
   a plurality of lightweight fan blades fixedly attached to said top surface of said wrist watch;
   a motor means contained within said body member and electrically interconnected with said portable power source, and fixedly attached to said plurality of lightweight fan blades for causing rotation thereof;
   a switch means disposed upon said body member and electrically interconnected with said motor means, for activating said motor to engender sufficient flow of said ambient air away from said individual wearer’s face to limit incursion of said smoke and said other offensive gaseous pollutants dispersed in said individual’s airspace.
   2. Said portable wrist ambient air apparatus recited in claim 1, wherein said switch means includes control means for the application of power to said plurality of fan blades.
   3. Said portable wrist ambient air apparatus recited in claim 2, wherein said control means is toggled to either the “off” or “on” position.
   4. Said portable wrist ambient air apparatus recited in claim 2, wherein said control means controls the variable rotational speed applied to said plurality of fan blades.
   5. Said portable wrist ambient air apparatus recited in claim 4, wherein said variable rotational speed is set to one of “low,” “medium” or “high” position.
   6. Said portable wrist ambient air apparatus recited in claim 1, wherein said plurality of blades are constructed from plastic material imparting rigidity thereto with limited flexibility.
6. Said portable wrist ambient air apparatus recited in claim 1, wherein said plurality of blades are constructed from soft plastic material imparting complete flexibility thereto.

7. Said portable wrist ambient air apparatus recited in claim 1, wherein said portable power source comprises a plurality of batteries.

8. Said portable wrist ambient air apparatus recited in claim 1, wherein said portable power source comprises a solar power source.

9. For an individual situated in an environment having ambient air permeated with smoke and other offensive gaseous pollutants, in combination with a wrist watch worn upon said individual’s wrist, a portable wrist ambient air apparatus comprising:

   a body member disposed adjacent said wrist watch and affixed thereto, and including a battery compartment;
   a plurality of batteries contained within said battery compartment;
   plurality of lightweight fan blades fixedly attached to said top surface of said wrist watch;
   a motor means contained within said body member and electrically interconnected with said plurality of lightweight, flexible fan blades, for causing rotation of said plurality of lightweight, flexible fan blades;
   a switch means electrically interconnected with said motor means and affixed externally to said body member, for activating said battery-operated motor to engender sufficient flow of said ambient air away from said individual wearer’s face to limit incursion of said smoke and said other offensive gaseous pollutants dispersed in said individual’s airspace.

10. Said portable wrist ambient air apparatus recited in claim 9, wherein said switch means includes control means for the application of power to said plurality of fan blades.

11. Said portable wrist ambient air apparatus recited in claim 10, wherein said control means is toggled to either the “off” or “on” position.

12. Said portable wrist ambient air apparatus recited in claim 10, wherein said control means controls the variable rotational speed applied to said plurality of fan blades.

13. Said portable wrist ambient air apparatus recited in claim 12, wherein said variable rotational speed is set to one of “low,” “medium” or “high” positions.

14. Said portable wrist ambient air apparatus recited in claim 9, wherein said plurality of blades are constructed from plastic material imparting rigidity thereto with limited flexibility.

15. Said portable wrist ambient air apparatus recited in claim 9, wherein said plurality of blades are constructed from soft plastic material imparting complete flexibility thereto.

16. For an individual situated in an environment having ambient air permeated with smoke and other offensive gaseous pollutants, in combination with a clothing accessory having a base, a portable ambient air apparatus comprising:

   a body member disposed adjacent said base of said clothing accessory and affixed thereto, and including a power source compartment;
   a portable power source contained within said power source compartment;
   plurality of lightweight fan blades fixedly attached to said top surface of said clothing accessory;
   a motor means contained within said body member and electrically interconnected with said portable power source, and fixedly attached to said plurality of lightweight fan blades for causing rotation thereof;

   a switch means disposed upon said body member and electrically interconnected with said said motor means, for activating said motor to engender sufficient flow of said ambient air away from said individual wearer’s face to limit incursion of said smoke and said other offensive gaseous pollutants dispersed in said individual’s airspace.

17. Said portable ambient air apparatus recited in claim 16, wherein said switch means includes control means for the application of power to said plurality of fan blades.

18. Said portable ambient air apparatus recited in claim 17, wherein said control means is toggled to either the “off” or “on” position.

19. Said portable ambient air apparatus recited in claim 17, wherein said control means controls the variable rotational speed applied to said plurality of fan blades.

20. Said portable ambient air apparatus recited in claim 19, wherein said variable rotational speed is set to one of “low,” “medium” or “high” positions.

21. Said portable ambient air apparatus recited in claim 16, wherein said plurality of blades are constructed from plastic material imparting rigidity thereto with limited flexibility.

22. Said portable ambient air apparatus recited in claim 16, wherein said plurality of blades are constructed from soft plastic material imparting complete flexibility thereto.

23. Said portable ambient air apparatus recited in claim 16, wherein said portable power source comprises a plurality of batteries.

24. Said portable ambient air apparatus recited in claim 16, wherein said portable power source comprises a solar power source.

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