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(54) **AIR SMOKE REFRESHER**

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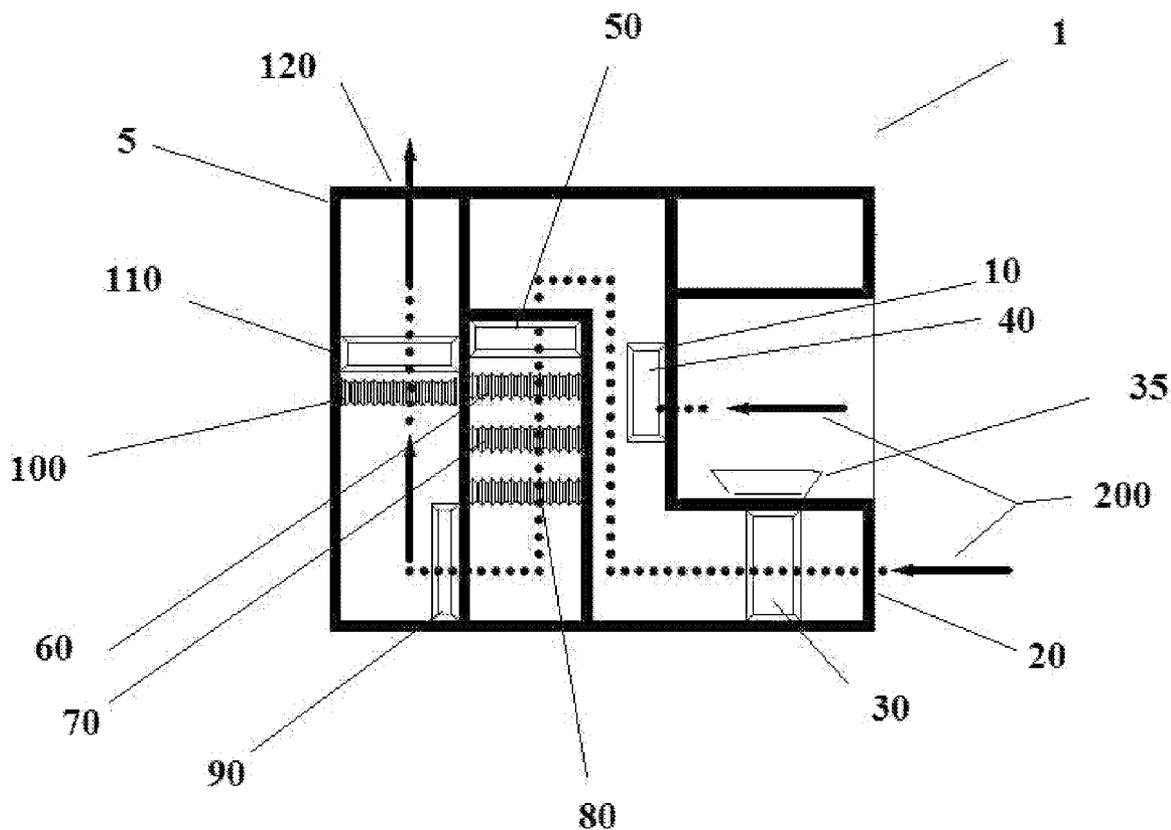
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(57) **ABSTRACT**

(21) Appl. No.: **12/647,034**

The current invention is an apparatus to clean air around a smoke. It is made of a case with air inlets which work with input fans. The air flows through a lime water filter, a silica gel filter and cellulose cotton. The air also flows by an aromatic before going through an air outlet. The apparatus has a power source and an on/off switch connected to the fans. The apparatus can be power by numerous power sources and can be taken with the smoker if desired.

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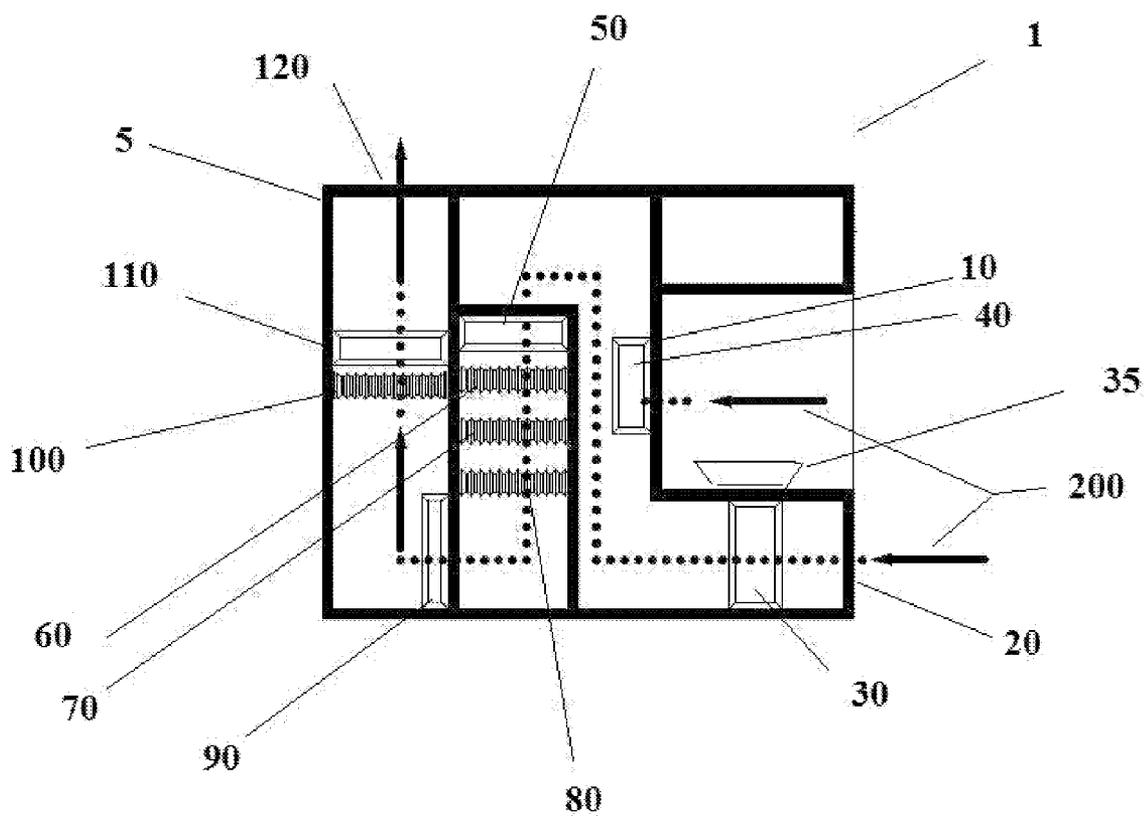


Figure 1

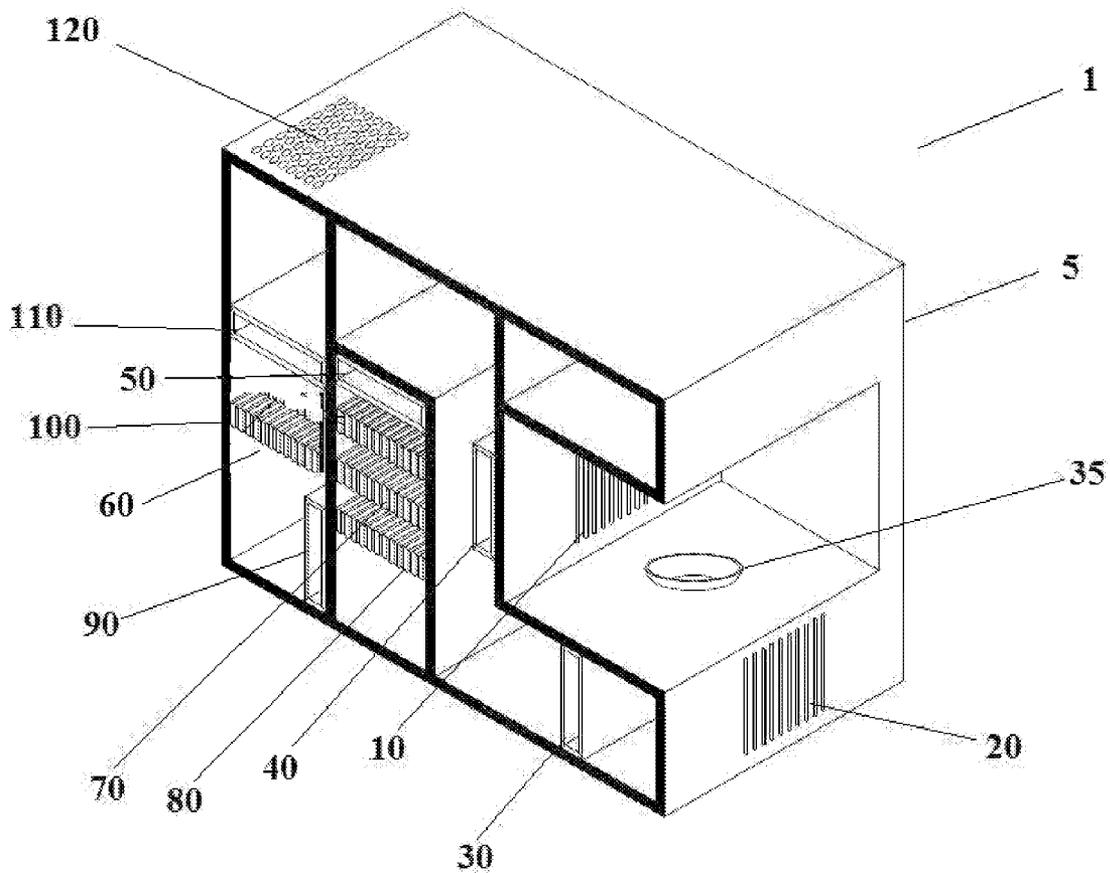


Figure 2

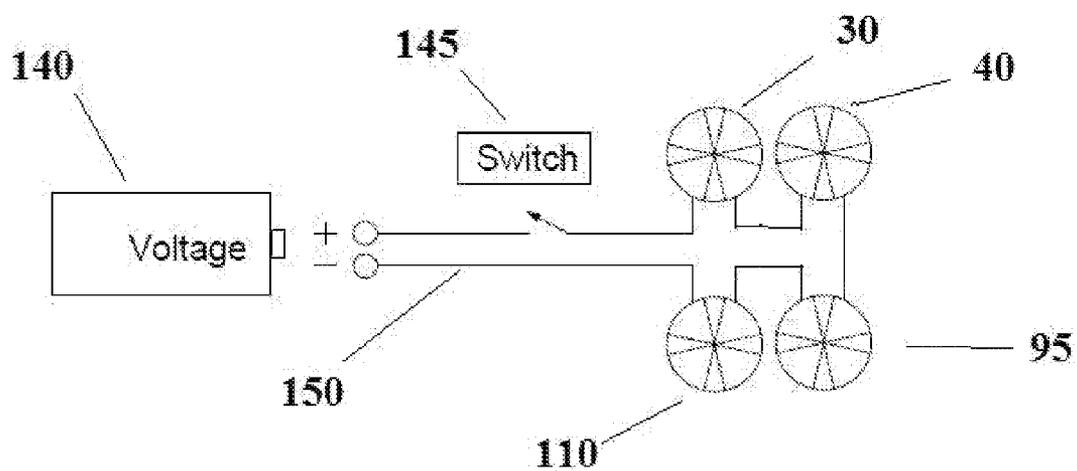


Figure 3

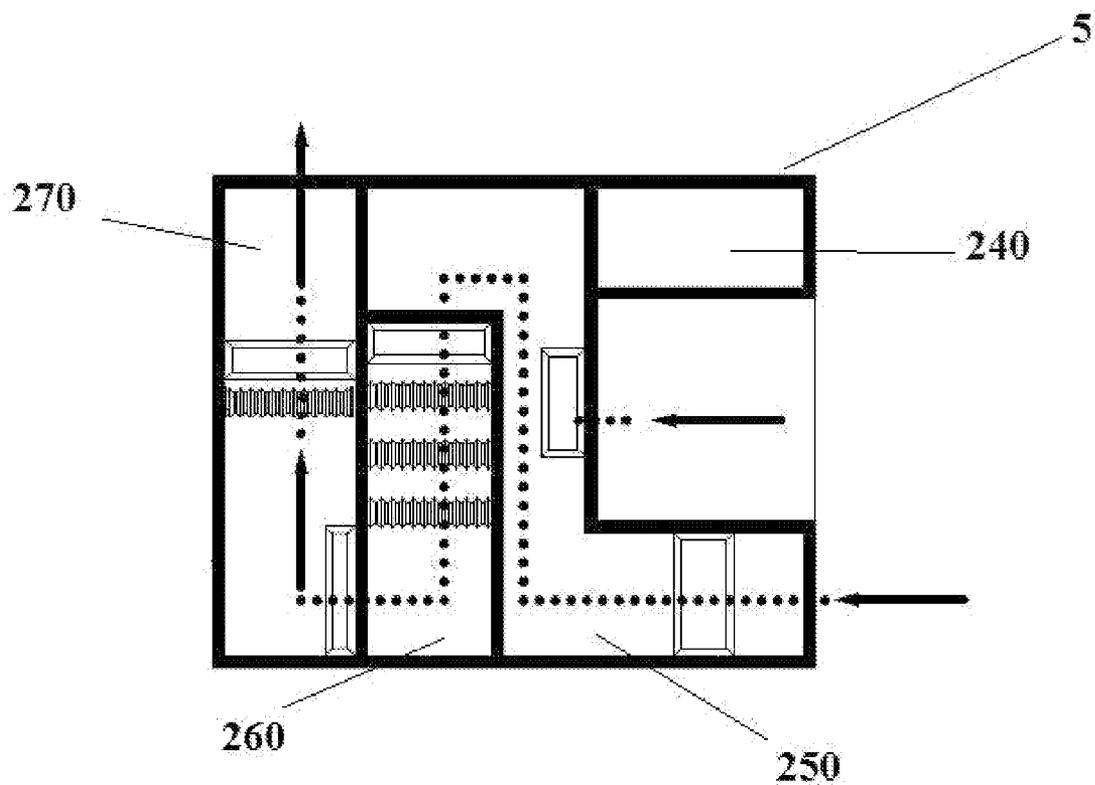


Figure 4

AIR SMOKE REFRESHER**BACKGROUND OF INVENTION****[0001]** 1. Field of Invention

[0002] The present invention relates to an Air Refresher and in more particular one the works with the refreshing air from smoke from cigarette, pipe and cigar smoking.

[0003] 2. Description of Prior Art

[0004] The dangers of second hand smoke are well known. There needs to be a way to keep the air surrounding a person clean especially those who are sitting beside a smoker. This can be in an office, home of any other enclosed space in order to protect them against the damages of passive smoking. There is a lack of a number of devices and methods to assist someone in this way in prior art.

PRIOR ART

[0005] U.S. Pat. No. 4,671,300 by Grube, et al. and issued on Jun. 9, 1987, is for an ashtray for eliminating emitted smoke is disclosed. The ashtray defines, within its housing, a predetermined, fixed filter region. An air filter is positioned within and confined by the filter region to ensure that substantially all air passes through the filter medium of the air filter.

[0006] U.S. Pat. No. 4,732,591 by Tujisawa, et al. and issued on Mar. 22, 1988, is for an air-cleaning apparatus presenting an appearance of a flowerpot comprises: a hollow container provided with a ventilating hole in its lower portion and an opening in its upper portion; a fan disposed inside the container; driving means for driving the fan; an air-cleaning filter disposed above the ventilating hole; an air-permeable supporting plate disposed above the fan and the filter; and a natural and/or imitation garden plant mounted on the supporting plate, which plant is covered at its root with an air-permeable filter.

[0007] U.S. Pat. No. 4,996,995 by Kojima and issued on Mar. 5, 1991, is for an ashtray which has a main body including a tray for receiving ashes and a housing having an opening facing upwardly for housing the tray therein, a lid member for covering the opening of the housing therewith, a hinge assembly for rotatably connecting the lid member to the main body, an air cleaning means disposed at the lid member for removing impurities from the air, the air cleaning means including a fan for exhausting the air, a drive means for driving the fan and an air cleaner for removing impurities from the air and a light means for lighting the main body and the lid member. The ashtray can be used in a dimly-lit-place as well as in a well-lit place, and is able to clean the air by removing impurities, including smoke emitted from cigarettes or other smoking materials.

[0008] U.S. Pat. No. 5,141,539 by Hiouani and issued on Aug. 25, 1992, is for an apparatus to direct cigarette smoke and the like in an ambient environment relative to a filter housing includes a base, with the base mounting a support plate to an upper distal end of an adjustable tube adjustably mounted within the base. A filter housing is mounted to the plate to include a fan organization to direct ambient air through the filter, with a surrounding truncated conical shield oriented about the filter housing to effect directing of smoke and the like to the filter.

[0009] U.S. Pat. No. 5,259,400 by Bruno, et al. and issued on Nov. 9, 1993, is for an ashtray that has a base with a lid hinged thereto. A filter is in the lid in order to accommodate an

easy filter replacement. An air duct in the lid enables a fan in the base to draw smoke through the filter and out the base. The fan is operated in response to raising the lid to an upright position. The intake to the air duct is far enough from debris in the ashtray to preclude drawing the debris into the air duct. The lid tends to seal in odors when it is closed. An area in the base may also receive a filter in order to provide a compatibility with preexisting filters.

[0010] U.S. Pat. No. 5,325,876 by Yang and issued on Jul. 5, 1994, is for an ash tray that includes a device for filtering the nicotine in the cigarette smoke and for changing the cigarette smoke into a harmless gas. The device includes a catalytic exchanger, an ozone generator, a fan, a transformer and a filter enclosed within an enclosure including a base plate and a bowl-shaped cover member.

[0011] U.S. Pat. No. 5,542,438 by Adams, et al. and issued on Aug. 6, 1996, is for a smokeless ashtray system includes a vacuum manifold connecting a plurality of ashtrays to a charcoal filter and a vacuum blower/motor assembly. The vacuum manifold includes spiral wound metal flexible metal tubing segments secured to connectors by heat shrink tubing. L connectors connect end most ashtray locations to the manifold, T connectors connect intermediate ashtray locations, and a four-way connector connects a central ashtray location to the manifold and to the charcoal filter and blower/motor assembly. Each ashtray location includes a flue member having a first end threaded into the associated connector and a second end inserted within a recess formed centrally in a bottom surface of a cup-shaped ashtray. A connector mounting bracket includes locating apertures engaging alignment pins extending from a flat upper surface of the connector, and a flange on the flue member clamps the bracket to the connector. Screws secure mounting flanges of the bracket to the underside of a table or other mounting surface. A central chimney in the ashtray includes a shield dome covering an open top end to prevent ashes and other debris from entering the air flow path. A replaceable disposable coalescing filter element in the flue member filters smoke prior to passage into the manifold, thus substantially reducing tar fouling of the system. A control box includes an on/off switch, a power on LED, and a service needed LED activated by monitoring load on the motor to indicate filter clogging.

[0012] U.S. Pat. No. 5,562,286 by Brinket and issued on Oct. 8, 1996, is for a smoke-eliminating device of simple construction which can easily be installed onto a preexisting casino gaming table. The fan for circulating air during the purification process is located beneath the gaming table to thereby reduce noise and increase the amount of usable area surrounding the gaming device. The smoke-eliminating device of the present invention is placed between the outer edge of the gaming table and a padded rim above this outer edge. Spaces are placed between the padded rim and the outer edge of the gaming table, to thereby vertically raise the padded edge. The space created between the padded rim and the gaming table is filled with intake vents and the spacers. An air circulator and purifying device is located beneath the table and conduit connects the intake vents to the air circulator and purifying device. The intake vents thus remove cigarette smoke from near the gaming table, purify the air, and release the purified air beneath the gaming table.

[0013] U.S. Pat. No. 5,591,242 by Kuo and issued on Jan. 7, 1997, is for a smoke processor including a housing having a recess, an exhaust fan arranged with the housing, a filter mounted within the housing and located above the exhaust

fan, a smoke processing container fitted in the recess of the housing, a flexible pipe connecting the smoke processing container with the filter, a cigarette lighter mounted in the smoke processing container, a linking rod having an upper end pivotally connected with the smoke processing container, a rotating disc rotatably connected with a lower end of the linking rod, and a fixed disc engaged with the rotating disc and mounted within the housing, whereby the smoke exhaled by the smoker can be effectively purified thus preventing air pollution.

[0014] U.S. Pat. No. 5,601,636 by Glucksman and issued on Feb. 11, 1997, is for an air cleaner assembly for ionizing and filtering air is supported by an electrical receptacle mounted in a wall. A housing supports an enclosed filter and a fan forces air into the housing, wherein the air is filtered and ionized. The filtered and ionized air is forced out of the housing through a grill mounted within the housing. A plug connected to the housing is mateable with the wall mounted electrical receptacle to provide power to the fan and to force air into the housing, through the filter, past the ionizer and out through the outlet grill.

[0015] U.S. Pat. No. 6,116,246 by Glenn, et al. and issued on Sep. 12, 2000, is for a smokeless ashtray includes an ashtray that is formed with an ash receiving cavity and air passageway. The ashtray is supported by a housing having an upper portion which forms an air intake substantially adjacent to the ash receiving cavity, and a bottom portion which removably receives the ashtray. The bottom portion also includes a motor filter receiving space and is formed with an exhaust aperture. A motor is mounted within the motor filter receiving space with a fan being connected thereto such that the fan is located below the ashtray. The smokeless ashtray also includes an ashtray filter and/or a motor filter. The air passageway of the ashtray is configured to receive the ashtray filter while the motor filter receiving space within bottom portion of the housing is configured to receive the motor filter. The fan creates an air flow by drawing smoke-filled air into the air intake down through the air passageway and out through the exhaust aperture with at least one of the ashtray filter and the motor filter being located within the air flow to remove smoke and impurities therefrom.

[0016] U.S. Pat. No. 6,156,088 by Cardarelli and issued on Dec. 5, 2000, is for a smoke and odor purifying system which can be incorporated within a housing that can serve both as a table centerpiece and an ashtray. The system having an esthetically pleasing flower vase construction with petal shaped appendages for resting of cigarettes or the like. A floral arrangement is made up of individual artificial flowers. Each flower having an opening in the bud for drawing in smoke-filled air and passing it through the system. Also defined within the petals of the housing are a plurality of intake openings through which cigarette smoke, as well as secondary smoke from the surrounding area may be drawn downwardly through the device. An electrically or battery powered fan means, positioned below a filtration and odor-treatment system, drives the smoke through the system which includes an electrostatic prefiltering bed followed by an activated charcoal bed, an H.E.P.A. filter and finally another activated charcoal bed containing an air freshening material. Refreshed and smoke free air is returned to the surrounding atmosphere through a plurality of exhaust vents located at the bottom of the housing.

[0017] U.S. Pat. No. 6,328,791 by Pillion, et al. Dec. 11, 2001, is for an air filtration device for intake of atmospheric

air, removal of contaminants from the atmospheric air, expulsion of filtered air, includes a housing configured for application directly to an electrical outlet and provides air intake from the front surface of the housing and air expulsion from the side of the housing to utilize a wall surface to disperse the filtered air. An indicator is provided to communicate that a filter should be changed, and a filter orientation system is provided to allow proper orientation of the filter with respect to air flow.

[0018] U.S. Pat. No. 6,350,302 by Hallstead, Sr. and issued on Feb. 26, 2002, is for an air filtration system for filtering smoke from the air. The system includes a filter tank for holding a volume of water. A bulkhead wall therein divides the filter tank into first and second compartments and has a hole there through to permit passage of water between the first and second compartments of the filter tank. A mesh screen substantially covers the hole of the bulkhead. An air intake conduit is fluidly connected to the first compartment of the filter tank for drawing unfiltered air and debris into the filter tank from a location such as a room. A water supply conduit is fluidly connected to the filter tank for supplying water to the filter tank. A vacuum device is provided for drawing air out of the filter tank. The vacuum device has an intake fluidly connected to the second compartment of the filter tank for drawing air from the filter tank into the vacuum device. The vacuum device has a first return conduit for receiving air drawn into the vacuum device through the intake of the vacuum device. A holding tank is provided for holding water therein. A main drain conduit fluidly connects the filter tank to the holding tank. A sewer drain conduit is fluidly connected to the holding tank to permit passage of water out of the holding tank. A stopper assembly is provided for selectively opening and closing the main drain conduit.

[0019] U.S. Pat. No. 6,361,590 by Gilbert, Jr., et al. and issued on Mar. 26, 2002, is for a portable air cleaner including a housing defining an air inlet, an air outlet, and an air flow path therebetween, a centrifugal blower retained within the air flow path and operable to draw air through the inlet and a filter retained within the housing and disposed to transmit air circulating in the air flow path out of the outlet. Also included is a conveyor surrounding the blower and defining a scroll shaped passage having one end disposed to receive air from the blower and an opposite end disposed to discharge air into the filter, the conveyor being shaped and arranged to obstruct all rectilinear paths between the blower and the opposite end.

[0020] U.S. Pat. No. 7,025,798 by Endo and issued on Apr. 11, 2006, is for a personal tabletop-type air cleaner is provided which is user-friendly and can improve smoke sucking efficiency in a simple configuration. The disclosed personal tabletop-type air cleaner has a front opening portion to suck air containing smoke of a cigarette, a blower to forcedly feed air having been sucked into the front opening portions in a centrifugal manner, a pair of right and left peripheral opening portions each being placed in a fringe portion on the right and the left at a front of the air cleaner and forming an air curtain by emitting air fed forcedly from the blower ahead of the front of the air cleaner, a dust collecting filter being placed between the front opening portion and the blower to remove cigarette odor, and a deodorizing filter being placed between the blower and each peripheral opening portion making up the pair of right and left peripheral opening portions to remove cigarette odor.

[0021] U.S. Pat. No. 7,302,954 by Shigematsu, et al. and issued on Dec. 4, 2007, is for a system in which a constitutive

element of a tobacco (a leaf-tobacco component or a filter) is added a proanthocyanidin or a proanthocyanidin-carrying porous material (such as an active carbon) to obtain an element for tobacco smoke. The proanthocyanidin may be at least one extract selected from a grape seed or pip, a grape rind or pericarp and squeezed dregs of a grape fruit.

[0022] U.S. Pat. RE36,106 by Bruno, et al. and issued on Feb. 23, 1999, is for an ashtray has a base with a lid hinged thereto. A filter is in the lid in order to accommodate an easy filter replacement. An air duct in the lid enables a fan in the base to draw smoke through the filter and out the base. The fan is operated in response to raising the lid to an upright position. The intake to the air duct is far enough from debris in the ashtray to preclude drawing the debris into the air duct. The lid tends to seal in odors when it is closed. An area in the base may also receive a filter in order to provide a compatibility with preexisting filters.

[0023] There is still room for improvement in the art.

SUMMARY OF INVENTION

[0024] The current invention is an apparatus that maintains the air surrounding a person clean especially those who are sitting beside a smoker. This can be in an office, home of any other enclosed space in order to protect them against the damages of passive smoking. The apparatus sucks the air of the smoker directly from the smoker or from the ash tray. This helps to keep the air clean and perfumed.

[0025] The system is more efficient, effective, accurate and functional than the current art.

BRIEF DESCRIPTION OF DRAWINGS

[0026] Without restricting the full scope of this invention, the preferred form of this invention is illustrated in the following drawings:

[0027] FIG. 1 shows a cross section of the apparatus;

[0028] FIG. 2 displays a top front view of the apparatus; and

[0029] FIG. 3 displays a simple schematic of the device electronic; and

[0030] FIG. 4 displays the layout of the apparatus.

DETAILED DESCRIPTION

[0031] The following description is demonstrative in nature and is not intended to limit the scope of the invention or its application of uses.

[0032] There are a number of significant design features and improvements incorporated within the invention.

[0033] As shown in FIG. 1, the current invention is an apparatus that maintains the air surrounding a person clean especially those who are sitting beside a smoker. This can be in an office, home of any other enclosed space in order to protect them against the damages of passive smoking. The apparatus sucks the air of the smoker directly from the smoker or from the ash tray. This helps to keep the air clean and perfumed.

[0034] The apparatus maintains the air surrounding the person clean especially those whose are setting beside a smoker either in the office, at home or any other closed place in order to protect them against the damages of the passive smoking where it sucks the air of the smoker directly or from an ash tray. This helps keep the air clean and perfumed.

[0035] The device works on keeping the air clean and not polluted and keeping the air free of pollution gas such as Carbon Monoxide and Carbon dioxide which result from a

burning cigarette or cigar, protecting the family members or the employees sitting beside a smoker, especially those with allergies, lung disease and chronic asthma, keeping the air always clean and perfumed and it is small so that it can be used in any closed place. And it can be operated electrically.

[0036] FIG. 1 shows the workings of the apparatus. The apparatus is contained in a case 5, which in the preferred embodiment is rectangular in shape, but other shapes can be used.

[0037] The Air inlet 10 is next to the cigarette ash tray 35. There is another air inlet 20 from the smoker's mouth directly or from the polluted air. There is a lower fan 30 to suck the polluted air or smoke. There is an upper fan 40 to suck the smoke from the ash tray 35. There is an internal fan 50 to suck the air from the front fans (30 and 40) and pass it to the filters. There Is a Lime water filter 60 for the sedimentation of the nicotine and other pollutants. There is a Silica Gel filter 70 to filter the sedimentation of the harmful Carbon Monoxide and Carbon Dioxide. There is Cellulose cotton 80 to filter the filter the air to ensure cleaner air. There is a aromatic fan 90 to push the air through the aromatic 100 to perfume the air. There is an outlet fan 110 to push the air outside the apparatus after cleaning, filtering and making the air aromatic through the outlet 120.

[0038] The aromatic 100 scents the output air with a desired scent of the user. This can be a scented cake or any standard air scenting device and/or means.

[0039] FIG. 2 shows the lower air inlet 15 which is near the smoker's mouth or the polluted air as well as the air tray 35. It also displays the upper air inlet 45 from the cigarette ash tray 35.

[0040] FIG. 3 shows a simple schematic of the fan circuitry. The lower fan 30, the upper fan 40, the aromatic fan 95 and the outlet fan 110 are connected to a power source 140 and are turned on and off through a switch 145. The normal connection is through electrical wiring 150. Any standard electrical switch can be used including one connected to a wireless or sound sensor on/off device.

[0041] Most smoke air cleaning apparatus are used as air refreshers without filtering the air from the pollutants. Their functions is limited in refreshing the air by using the aromatic material and scents but the innovated apparatus considers this function of refreshing the surrounding air as a partial function

[0042] The prior art devices available in the market are mostly used to filter the air from the pollutants, bacteria and nasty smells and most of them are operated by the battery (charged or the normal) or directly by electricity but the new created apparatus includes filters of different types for the sedimentation of harmful materials (such as smoke of cigarette, burning papers, in the office/bacteria/air pollutions/dust. etc. This is the essential difference between it and those available in the market. It also may be operated by more than one means as the power source 140 such as batteries/electrically directly to a plug in a wall socket/USB from PC or laptop or a cigarette lighter.

[0043] As shown in FIG. 1, the apparatus works through the section of the air 200 thorough the ash tray or by the smoke coming from the smoker directly. Transferring the polluted air 200 to the filter which removes the Nicotine residue from among its components or even if it was dust or any other pollutant. The passing of the air through the silica gel and limewater and some pieces of coal is used to collect the residue Carbon Monoxide and Carbon Dioxide. After the

passing of the air after being cleaned on a perfumed material the air comes out perfumed and clean.

[0044] In the preferred embodiment, the apparatus 1 is in a rectangular cabinet 5 which is wide enough to hold the ash tray 35 and to steadily stand upright. There is an overhang 240 over and forming the ash tray area 235 which serves to hold the smoke from the ashtray so that in can be sucked in by the upper fan 40. There is the smoke input chamber 250 which holds the two input fans which in the preferred embodiment is in a "Z" shape. There is the filter chamber 260 which contains the internal fan 50 to suck the air from the front fans (30 and 40) and pass it to the filters and contains the lime water filter 60, the Silica Gel filter and the cellulose cotton 80. The filter chamber 260 is a vertical rectangle. The aromatic chamber 270 contains the aromatic 100, the aromatic fan 95 and the outlet fan 110. It is rectangular in shape the runs vertically in the back of the device. The air flows from the input chamber 250 to the filter chamber 260 to the aromatic chamber 270.

[0045] The filters and aromatic 100 will be able to be removed and replaced or cleaned in the preferred embodiment.

ADVANTAGES

[0046] The apparatus is light in weight and filters maybe easily replaced or cleaned after use. Since it is small in size to be carried from place to place or may be put anywhere and it maybe used in more than one place such as house, a vehicle or office.

[0047] Although the present invention has been described in considerable detail with reference to certain preferred versions thereof, other versions are possible. Therefore, the point and scope of the appended claims should not be limited to the description of the preferred versions contained herein.

[0048] As to a further discussion of the manner of usage and operation of the present invention, the same should be apparent from the above description. Accordingly, no further discussion relating to the manner of usage and operation will be provided. With respect to the above description, it is to be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention.

[0049] Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

What is claimed is:

1. An apparatus to clean air comprising:

a case with a plurality of air inlets with a plurality of input fans at said air inlets where the air flows through a lime water filter, a silica gel filter and cellulose cotton with the air flowing by an aromatic and then out through an air outlet.

2. The apparatus as described in claim 1, further comprising having an air inlet by an ash tray.

3. The apparatus as described in claim 1, further comprising having an air inlet by a smoker's mouth.

4. The apparatus as described in claim 1, further comprising having an outlet fan by the air outlet to push the air out of the case.

5. The apparatus as described in claim 1, further comprising having an aromatic fan push the air by the aromatic.

6. The apparatus as described in claim 1, further comprising having power source connected to said fans.

7. The apparatus as described in claim 6, further comprising having said power source being a USB slot.

8. The apparatus as described in claim 6, further comprising having said power source being a battery.

9. The apparatus as described in claim 6, further comprising having said power source being a direct connection.

10. The apparatus as described in claim 1, further comprising having said fans being turned on and off through an on/off switch.

11. The apparatus as described in claim 1, further comprising having said fans being connected to power source and an on/off switch and being turned on and off through an on/off switch.

12. The apparatus as described in claim 1, further comprising having said case having an overhang extend out to form an ash tray area which serves to hold the smoke from the ashtray so that in can be sucked in by an input fan.

13. The apparatus as described in claim 1, further comprising having said case having a smoke input chamber which holds the plurality of input fans

14. The apparatus as described in claim 1, further comprising having said case having a filter chamber which contains the internal fan which sucks the air from the input fans and passes it to through the filters.

15. The apparatus as described in claim 1, further comprising having said case having an aromatic chamber contains the aromatic, the aromatic fan, the outlet fan and the air outlet.

16. The apparatus as described in claim 1, further comprising having said case rectangular in shape.

17. An apparatus to clean air comprising:

a case with a plurality of air inlets with a plurality of input fans at said air inlets where the air flows through a lime water filter, a silica gel filter and cellulose cotton with the air flowing by an aromatic and then through an air outlet, having a power source and an on/off switch connected to said fans, having said case having an overhang extend out to form an ash tray area which serves to hold the smoke from the ashtray so that in can be sucked in by the upper fan, having a smoke input chamber which holds the plurality of two input fans, having a filter chamber which contains the internal fan which sucks the air from the input fans and passes it to through the filters and having an aromatic chamber contains the aromatic, the aromatic fan, the outlet fan and the air outlet.

18. The apparatus as described in claim 17, further comprising having said power source being a USB slot.

19. The apparatus as described in claim 17, further comprising having said power source being a battery.

20. The apparatus as described in claim 17, further comprising having the air flow from the input chamber to the filter chamber to the aromatic chamber to outside.