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(54) **METHOD AND APPARATUS FOR VAPOR CATCHING**

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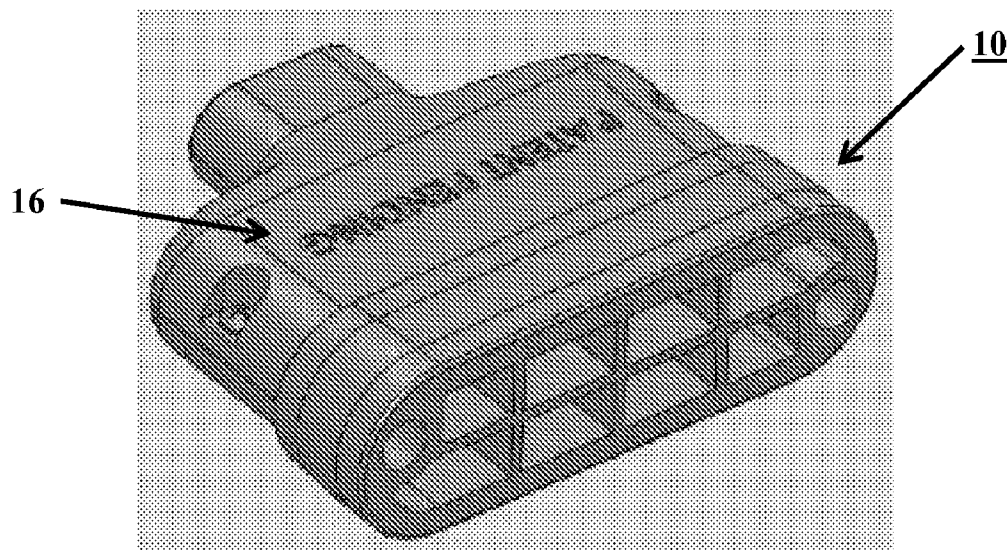
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(57) **ABSTRACT**

A vapor catching method and apparatus which catches approximately or nearly 100% of visible secondary vapor produced from an electronic cigarette is disclosed. A device embodying the method comprises a casing having an interior space for housing a vapor filter. The casing comprises a vapor intake opening and an exhaust port. The secondary vapor is exhausted through an appropriate filter system housed within the filter casing. In use, an electronic cigarette user sucks vapor through the lip end of an electronic cigarette product and exhales the vapor into the vapor intake opening of the vapor catching device which filters the various vapor chemicals allowing only clean filtered air to pass out of its exhaust port.



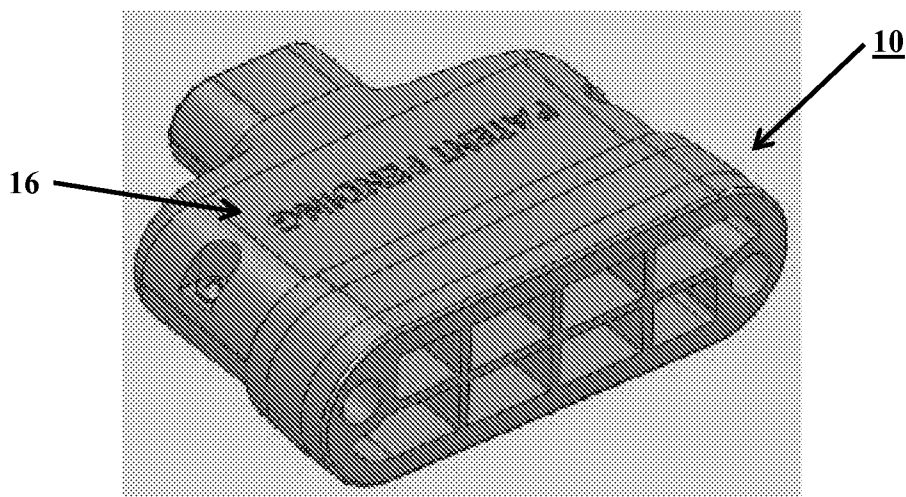


FIGURE 1

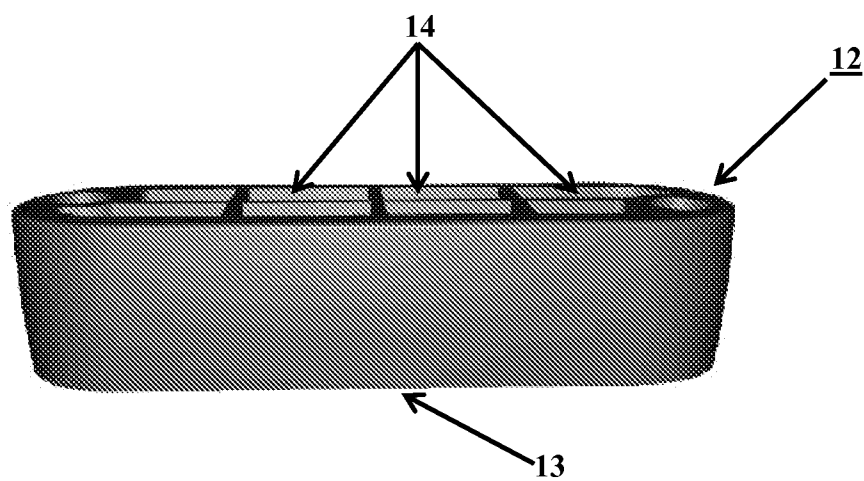


FIGURE 2

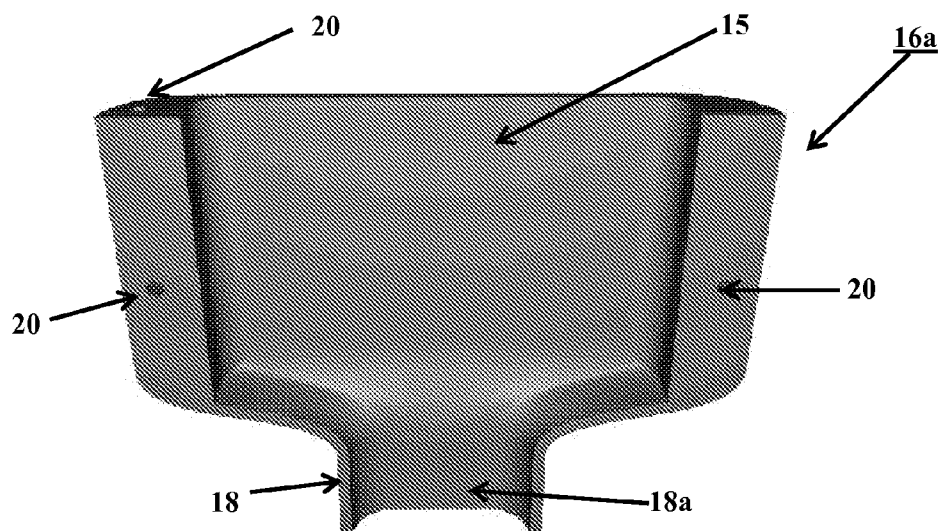


FIGURE 3

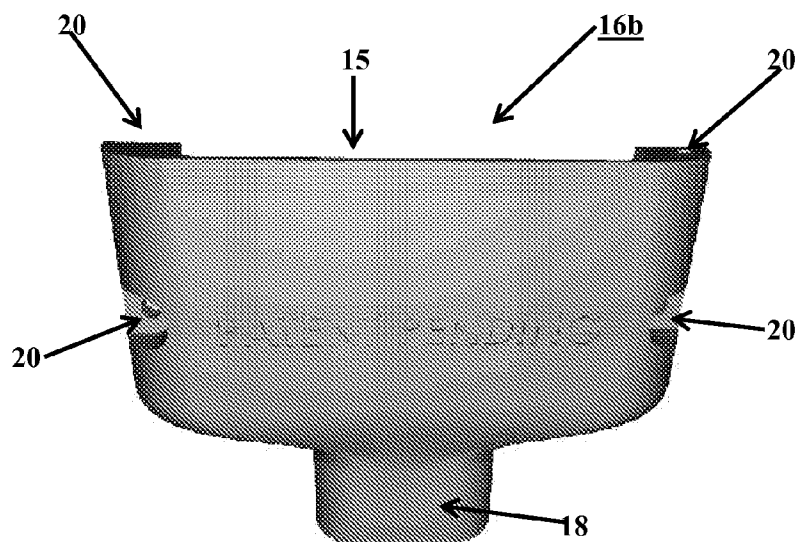


FIGURE 4

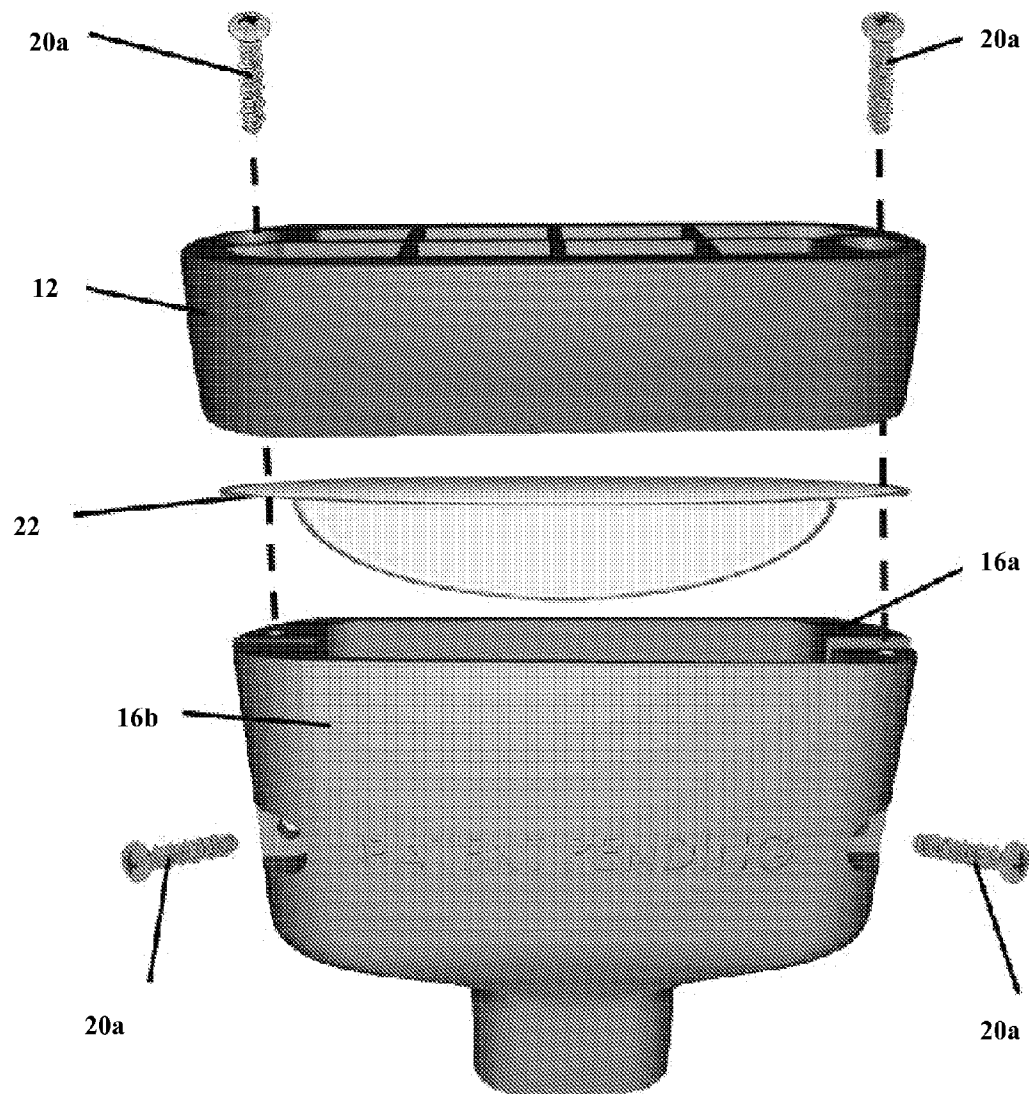


FIGURE 5

METHOD AND APPARATUS FOR VAPOR CATCHING

RELATED APPLICATIONS

[0001] This application claims benefit of priority to U.S. Provisional Patent Application No. 61/931,605 entitled “Personal Vapor Reducer”, filed Jan. 25, 2014, wherein the aforementioned priority application is hereby incorporated by reference in its entirety.

FIELD OF THE INVENTION

[0002] The present invention relates to electronic cigarettes. More particularly, the present invention is directed to electronic cigarettes that vaporize mixtures of propylene glycol and/or vegetable glycerin and/or other liquids with optional flavors including nicotine. More specifically, the present invention is in the field of accessories for use with these types of electronic cigarettes.

BACKGROUND OF THE INVENTION

[0003] “Vaping” is a popular new smoking replacement technology that is thought to be considerably less harmful than tobacco products. This technology incorporates the use of electronic cigarettes wherein flavors and/or nicotine are suspended in vegetable glycerin and/or propylene glycol and/or other liquids (sometimes referred to as “e-juice”). In use, the e-juice is heated by an electronic device (usually resembling a pipe, cigar or cigarette) and inhaled. To date, the exhalation from vaping is not known to pose a measurable second-hand smoke danger. Because of the novelty of the technology and the less harmful nature of vaping, many municipalities and businesses currently allow people to vape in places where tobacco smoking would be prohibited (such as bars, restaurants, businesses, etc.).

[0004] However, vaping usually produces a visible exhalant that resembles cigarette smoke. Due to the social stigma associated with smoking, people who vape are often subject to concern or hostility from others. Therefore, there is a need to allow a user to “smoke” and enjoy an electronic cigarette with the ability to dispose of the resulting vapor so as not to disrupt or disturb people in their presence or the surrounding public.

SUMMARY OF THE INVENTION

[0005] A vapor catching method and apparatus which catches approximately or nearly 100% of visible secondary vapor produced from an electronic cigarette is disclosed. A device embodying the method comprises a casing having an interior space for housing a vapor filter. The casing comprises a vapor intake opening and an exhaust port. The secondary vapor is exhausted through an appropriate filter system housed within the filter casing. The filter material may be folded or shaped to increase the surface area available for filtering exhaust. In use, an electronic cigarette user sucks vapor through the lip end of an electronic cigarette product and exhales the vapor into the vapor intake opening of the vapor catching device which filters the various vapor chemicals allowing only visibly clean filtered air to pass out of its exhaust port.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] Further objects and advantages of the present invention will become apparent as the following description of the illustrative embodiments takes place, in which:

[0007] FIG. 1 perspective views a vapor catching device in accordance with the present invention;

[0008] FIG. 2 is a perspective view of the front end of the vapor catching device shown in FIG. 1;

[0009] FIGS. 3 and 4 are exploded disassembled perspective views illustrating an interior of a vapor catching device and its means for holding a filter in place in accordance with the present invention; and

[0010] FIG. 5 is an exploded disassembled perspective views illustrating an example of a vapor catching device similar to that shown in FIG. 1.

DESCRIPTION OF A PREFERRED EMBODIMENT

[0011] Referring now to FIG. 1, there is shown a graphical representation of a personal vapor reducer 10 in accordance with the present invention. In accordance with a preferred embodiment of the present invention the vapor catching device 10 catches approximately or nearly 100% of visible secondary vapor produced from an electronic cigarette. Referring now to FIGS. 2 through 5, the device 10 comprises a filter case 16 that is formed by combining two identical or nearly identical first 16a and second housing 16b shells. It should be understood that first and second housing shells 16a and 16b, respectively may not be identical and still form a filter case in accordance with the present invention. The filter case may also be a single piece, so long as it incorporates an intake, filter and exhaust port. Turning once again to FIGS. 3 and 4, the first 16a and second 16b housing shells define an interior space 15 for housing a vapor filter 22 as shown in FIG. 5. Additionally, the first and second housing shells 16a and 16b define a tapered end section 18 that when assembled trap the vapor produced by the user of an electronic cigarette as will be more fully described below.

[0012] More specifically, as shown in FIGS. 2 through 5, the first and second housing shells 16a and 16b define a plurality of mounting holes 20 for receiving mounting screws 20a for assembling the identical mating parts 16a and 16b together. The housing may also be fastened with glue, another style of mechanical fastener, or formed as a single piece. Additionally, as shown in FIG. 2, an end-cap 12 defines a vapor intake opening 13 and exhaust ports 14 at each end of the filter case. The secondary vapor is exhausted through an appropriately chosen filter 22 shown in FIG. 5 installed within and housed within the filter casing during the mating and screwing together of first and second housing shells 16a and 16b. It may also be fastened with glue or another seal-creating mechanism. The exhaust port 12 is assembled and mounted to first and second housing shells 16a and 16b also using a similarly set of mounting holes 20 for receiving mounting screws 20a during assembly of mating parts 16a and 16b together. The exhaust port 12 may also be fastened with glue or another seal-creating mechanism. In use, an electronic cigarette user sucks vapor through the lip end of an electronic cigarette product and exhales the vapor into the vapor intake opening 18 of the vapor catching device 10 which filters 22 the various vapor chemicals allowing only visibly clean filtered air to pass out of its exhaust ports 14.

[0013] In FIG. 3, the filter **22** is shown with a concave shape to increase the surface area of the filter available for air flow. The surface area may also be increased by folding material in a similar fashion to an automobile's air filter.

[0014] Although particular embodiments of the invention have been shown and described in full here, there is no intention to thereby limit the invention to the details of such embodiments. On the contrary, the intention is to cover all modifications, alternatives, embodiments, usages and equivalents of the subject invention as fall within the spirit and scope of the invention, specification, and the appended claims.

What is claimed is:

1. A vapor catching device, comprising:
a casing having an interior space for housing a vapor filter;
said casing defining a vapor intake opening and an exhaust port; wherein
secondary vapor is exhausted through said vapor filter
when an electronic cigarette user sucks vapor through
the lip end of an electronic cigarette product and exhales
the vapor into said vapor intake opening which filters
various vapor chemicals allowing only clean filtered air
to pass out of said exhaust port.
2. The vapor catching device according to claim 1 wherein
said casing is formed by combining first and second housing
shells.
3. The vapor catching device according to claim 1 wherein
said casing defines a generally square interior space for hous-
ing said vapor filter.
4. The vapor catching device according to claim 1 wherein
said casing defines a tapered end section.
5. The vapor catching device according to claim 1 wherein
said casing is formed by combining first and second housing
shells wherein said first and second housing shells define a

plurality of mounting holes for receiving mounting screws for
assembling said identical mating parts together.

6. The vapor catching device according to claim 1 wherein
said casing further includes an end-cap, said end-cap defining
a vapor intake opening at a first end and exhaust ports at a
distal end.

7. The vapor catching device according to claim 1 wherein
said casing further includes an end-cap, said end-cap defining
a vapor intake opening at a first end and exhaust ports at a
distal end and said end-cap is mounted to said case.

8. The vapor catching device according to claim 1 wherein
said vapor filter is shaped in a concave manner for increasing
surface area and available for air flow and filtering.

9. The vapor catching device according to claim 1 wherein
said vapor filter is shaped with repeating folds similar to an air
filter of an automobile for increasing surface area available
for air flow and filtering.

10. The vapor catching device according to claim 1
wherein said casing is formed by combining first and second
housing shells wherein said first and second housing shells
providing glue-able surfaces for assembling said identical
mating parts together.

11. A method for vapor catching, comprising:
housing a vapor filter an interior space of a casing;
defining a vapor intake opening and an exhaust port for said
case; wherein
creating secondary vapor is exhausted through said vapor
filter when an electronic cigarette user sucks vapor
through the lip end of an electronic cigarette product and
exhales the vapor into said vapor intake opening which
filters various vapor chemicals allowing only clean fil-
tered air to pass out of said exhaust port.

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