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(54) **AEROSOL PROVISION DEVICE
COMPRISING A DETECTOR FOR AN USER
AIR OUTPUT**

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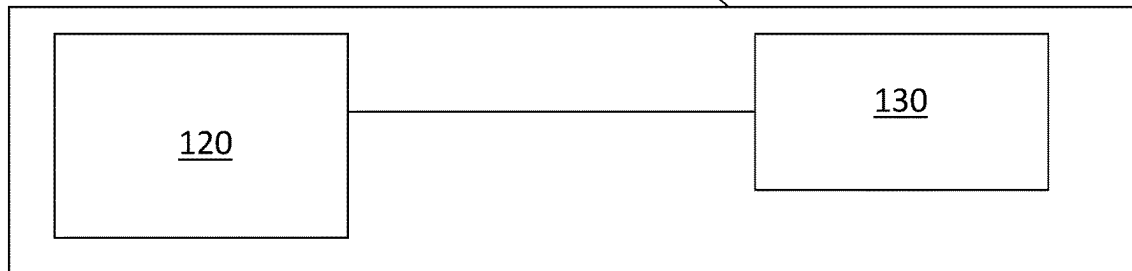
ABSTRACT

There is provided an aerosol provision device, for providing an aerosol for inhalation by a user, comprising: control circuitry for controlling an activation state of the aerosol provision device; a detector arranged to detect an air output associated with a user of the aerosol provision device; wherein the control circuitry is arranged to update an activation state of the aerosol provision device in response to receiving a signal from the detector associated with an authorised user.

100



110



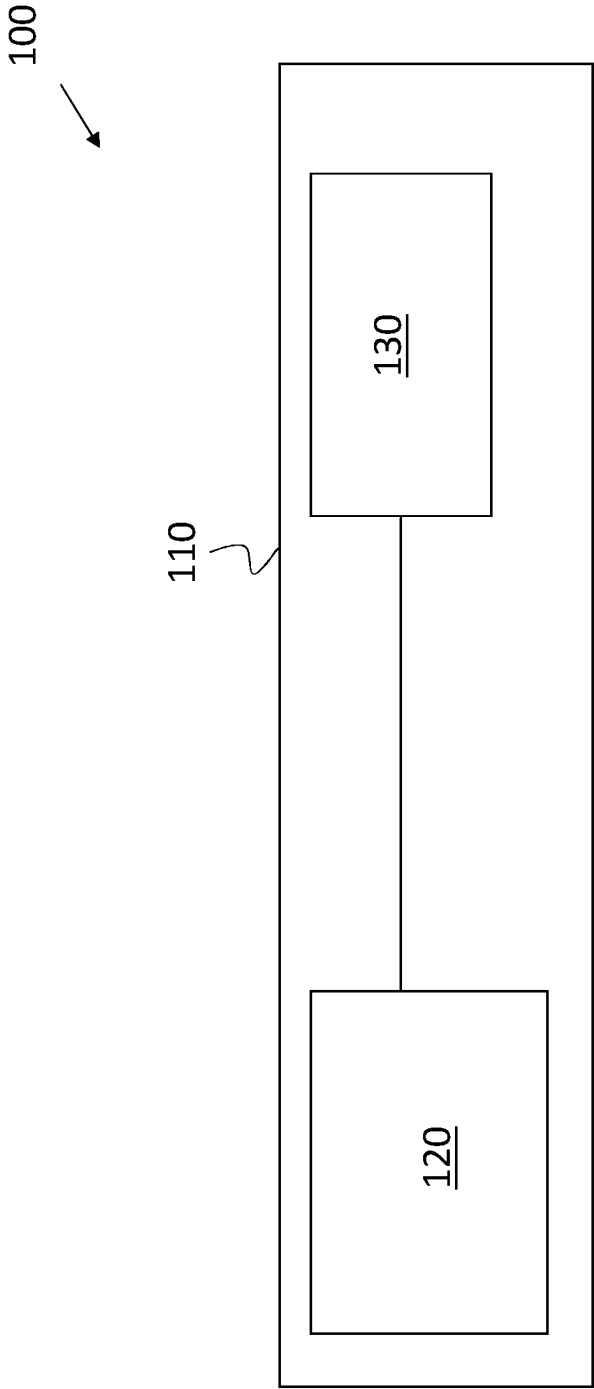


Figure 1

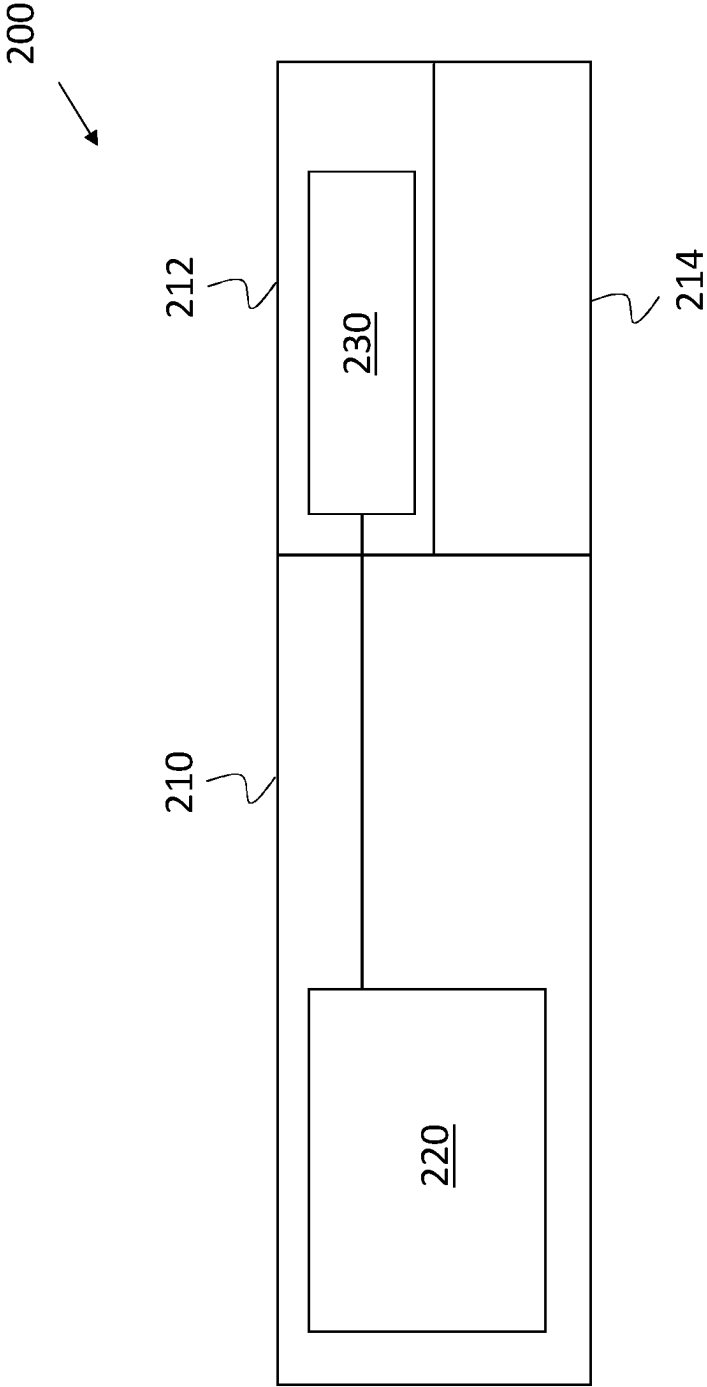


Figure 2

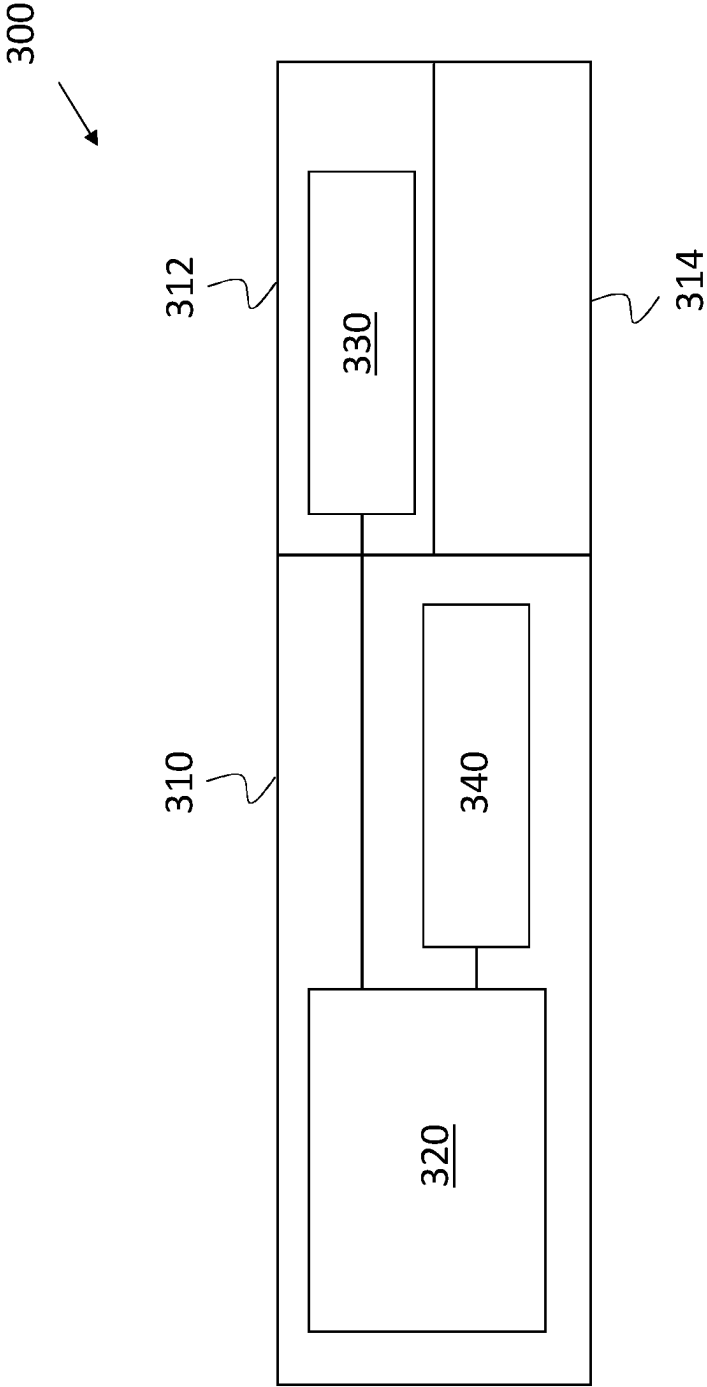


Figure 3

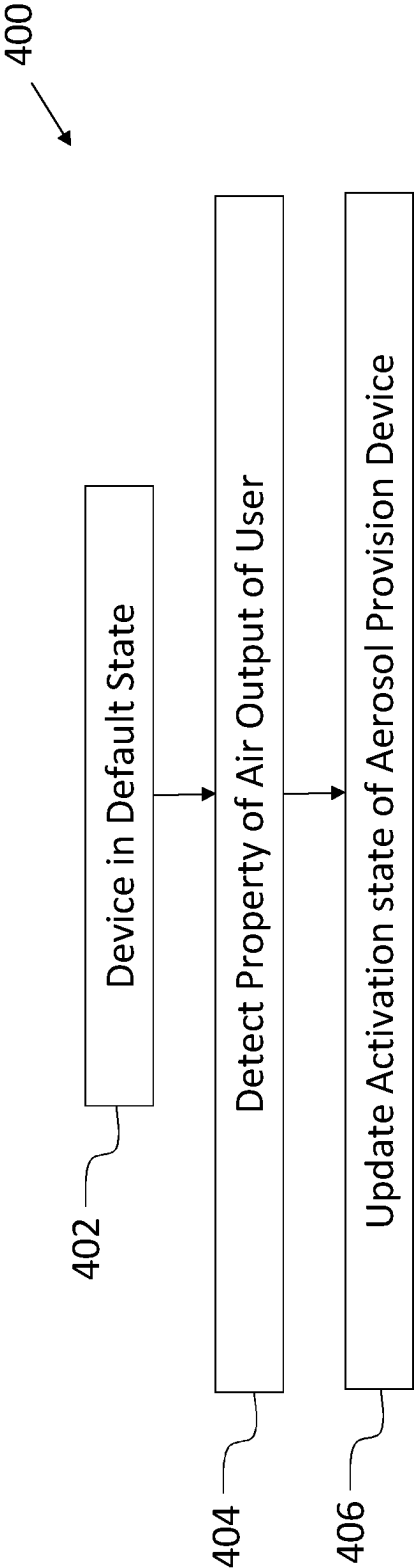


Figure 4

**AEROSOL PROVISION DEVICE
COMPRISING A DETECTOR FOR AN USER
AIR OUTPUT**

TECHNICAL FIELD

[0001] The present invention relates to an aerosol provision device, an aerosol-generating system, a method of providing an aerosol for inhalation by a user, and aerosol provision means.

BACKGROUND

[0002] Aerosol provision systems are known. Common systems use heaters which are activated by a user to create an aerosol by an aerosol provision device from an aerosol generating material which is then inhaled by the user. The device may be activated by a user at the push of a button or merely by the act of inhalation. Modern systems can use consumable elements containing the aerosol generating material. It can be desirable for the manufacturer to enable control over the activation of the systems. This may avoid the activation of the system in undesirable circumstances.

[0003] The present invention is directed toward solving some of the above problems.

SUMMARY

[0004] Aspects of the invention are defined in the accompanying claims.

[0005] In accordance with some embodiments described herein, there is provided an aerosol provision device, for providing an aerosol for inhalation by a user, comprising: control circuitry for controlling an activation state of the aerosol provision device; a detector arranged to detect an air output associated with a user of the aerosol provision device; wherein the control circuitry is arranged to update an activation state of the aerosol provision device in response to receiving a signal from the detector associated with an authorised user.

[0006] Such an arrangement is able to identify a potential user of the aerosol provision device and allow authorised users to operate the device. In particular, the arrangement detects an air output of a potential user and updates an activation state of the aerosol provision device accordingly. In particular, it is possible to identify an age of a user based on their exhalate. This arrangement utilises this for assisting in suitable activation of aerosol provision devices.

[0007] In particular, a user may be recognised by the time of exhalation or volume of exhalation or components contained in the exhalate. The aerosol provision device may have one or two mouthpieces through which the user can inhale and/or exhale. The exhalate mouthpiece may have a series of sensors to detect properties of the user's exhalate and provide analysis accordingly.

[0008] The aerosol provision device of the present invention is able to operate in "offline" or "online" mode when identifying potential users. In this way, a valid user may operate the device in offline environment provided the user satisfies the criteria for operation. The user experience of the device is thereby improved. This may involve having an on board or remote memory or database containing details of exhalates of the user or users.

[0009] The arrangement is also able to provide a "plug-and-play" approach. In that, the user may activate the device

on first usage and the information from the detector of the air output of the user can be used to alter the activation state of the device.

[0010] In this way, a valid user may have a full range of operational capabilities provided while an invalid user may have only a reduced subset or indeed no operational capabilities provided.

[0011] In accordance with some embodiments described herein, there is provided aerosol-generating system, for providing an aerosol for inhalation by a user, comprising: an aerosol provision device comprising: control circuitry for controlling an activation state of the aerosol provision device; and, a detector arranged to detect an air output associated with a user of the aerosol provision device; wherein the control circuitry is arranged to update an activation state of the aerosol provision device in response to receiving a signal from the detector associated with an authorised user.

[0012] In accordance with some embodiments described herein, there is provided a method of providing an aerosol for inhalation by a user, the method comprising: receiving an air output associated with a user of an aerosol provision device; detecting, by a detector, the air output associated with a user of the aerosol provision device; updating, by the control circuitry, an activation state of the aerosol provision device in response to receiving signals from the detector associated with an authorised user.

[0013] In accordance with some embodiments described herein, there is provided aerosol provision means, for providing an aerosol for inhalation by a user, comprising: control means for controlling an activation state of the aerosol provision means; inlet means for receiving airflow; detecting means arranged to detect an air output associated with a user of the aerosol provision means, the detecting means located in the inlet means of the device; outlet means for providing an inhalable aerosol to a user, wherein the control means is arranged to update an activation state of the aerosol provision means in response to receiving a signal from the detecting means associated with an authorised user.

DESCRIPTION OF DRAWINGS

[0014] The present teachings will now be described by way of example only with reference to the following figures:

[0015] FIG. 1 is a schematic view of an aerosol provision device according to an example;

[0016] FIG. 2 is a schematic view of an aerosol provision device according to an example;

[0017] FIG. 3 is a schematic view of an aerosol provision device according to an example; and,

[0018] FIG. 4 is a flow diagram according to an example.

[0019] While the invention is susceptible to various modifications and alternative forms, specific embodiments are shown by way of example in the drawings and are herein described in detail. It should be understood, however, that the drawings and detailed description of the specific embodiments are not intended to limit the invention to the particular forms disclosed. On the contrary, the invention covers all modifications, equivalents and alternatives falling within the scope of the present invention as defined by the appended claims.

DETAILED DESCRIPTION

[0020] Aspects and features of certain examples and embodiments are discussed/described herein. Some aspects and features of certain examples and embodiments may be implemented conventionally and these are not discussed/described in detail in the interests of brevity. It will thus be appreciated that aspects and features of apparatus and methods discussed herein which are not described in detail may be implemented in accordance with any conventional techniques for implementing such aspects and features.

[0021] The present disclosure relates to aerosol provision systems, which may also be referred to as aerosol provision systems, such as e-cigarettes. Throughout the following description the term “e-cigarette” or “electronic cigarette” may sometimes be used, but it will be appreciated this term may be used interchangeably with aerosol provision system/device and electronic aerosol provision system/device. Furthermore, and as is common in the technical field, the terms “aerosol” and “vapour”, and related terms such as “vaporise”, “volatilise” and “aerosolise”, may generally be used interchangeably.

[0022] FIG. 1 illustrates a schematic view of an example of an aerosol provision device 100 according to the present invention. The aerosol provision device 100 has an aerosol provision device housing 110. The aerosol provision device 100 has control circuitry 120. The control circuitry 120 is arranged to control an activation state of the aerosol provision device 100. The aerosol provision device 100 comprises a detector 130 arranged to detect an air output associated with a user of the aerosol provision device 100. The control circuitry 120 is arranged to update an activation state of the aerosol provision device 100 in response to receiving a signal from the detector 130 associated with an authorised user.

[0023] In an example, the property may be one relating to any aspect of air output of the user. In an example this may include air output volume, air output time, air output flow rate, or compounds in the air output of the user. Each of these are distinctive to a specific user, and can be used to identify the user. If the user is recognised as authorised, the control circuitry 120 will allow activation of the device 100 for provision of an aerosol to the user. If the user is not recognised as authorised, the control circuitry 120 may provide limited activation or fully prevent activation of the device 100. The air output from the user may be provided by the user to the device 100 via a portion of the housing 110 such as an opening or mouthpiece. The default state of the device 100 may be non-active and the arrangement may require the user to provide an air output prior to use of the device 100, this increases the protection against abuse of the device 100.

[0024] The aerosol provision device 100 may comprise heating arrangements or the like for providing an aerosol. The control circuitry 120 may control the heating arrangement (or the like) according to the signal received from the detector 130. The detector 130 may enable the control circuitry 120 to ascertain whether the user is an authorised user of the aerosol provision device 100. In an example, the detector 130 may provide signals to the control circuitry 120, the control circuitry 120 may recognise the signals as belonging to an authorised user and enable any operational mode of the device 100. In another example, the detector 130 may provide signals to the control circuitry 120, the control circuitry 120 may recognise the signals as belonging

to an unauthorised user and prevent any operational mode of the device 100. In this way, protection over the use of the aerosol provision device 100 is provided. This process is not overly intensive for the user; the protection provided requires only that the user exhale into the device 100 prior to use. The user may then receive full operability of the device 100.

[0025] In an example, the detector 130 may comprise a flow sensor, volume sensor, time sensor, pressure sensor and a compound sensor for sensing chemical compounds or the like. These individual sensors may be combined in an exhalate sensor suitable for measuring the following properties. The detector 130 may detect any of air output speed, air output volume, air output chemical composition, and time period between air outputs. Each of these is characteristic of a user. The user can pre-program their typical exhalation during a setup phase. This data can provide a comparison to the data provided prior to use. The setup phase may assist in increasing the accuracy of user recognition from air output. If the signals provided prior to use are the same (within confidence margins) as those provided in setup phase, the arrangement may recognise the user as the authorised user and then provide full operability of the device 100.

[0026] Referring now to FIG. 2, there is shown a similar device 200 to the device 100 of FIG. 1. Similar features, to those features used in FIG. 1, are shown with the reference numerals increased by 100. For example, the device 100 of FIG. 1 is similar to the device 200 of FIG. 2. Similar or identical features may not be discussed for conciseness.

[0027] The device 200 of FIG. 2 has control circuitry 220 and a detector 230. The aerosol provision device 200 of FIG. 2 also has an inlet 212 for receiving airflow. The detector 230 is located in the inlet 212. The aerosol provision device 200 of FIG. 2 also has an outlet 214 for providing an inhalable aerosol to the user. The user, in use, therefore provides an air output to the inlet 212 and receives an inhalable aerosol from the outlet 214. The inlet 212 and outlet 214 may be part of one mouthpiece or two separate mouthpieces on the housing 210 of the device 200. By using two fully separated airways, the device is able to keep both routes uncontaminated by the other, but is more mechanically taxing to provide. In contrast, using the same portion of airway for both reduces the mechanical difficulty of production but allows some contamination.

[0028] The device 200 may comprise a moveable closure (not shown) arranged to close at least a portion of the outlet 214 when receiving airflow and close at least a portion of the inlet 212 when providing inhalable aerosol. This assists in prevention contamination in the example wherein some airway is common across both inlet 212 and outlet 214.

[0029] In use, a user exhales into the inlet 212 and the detector 230 detects a property associated with the user's exhalate. The detector 230 sends a signal to the control circuitry 220. The control circuitry 220 compares the signal to known properties of the user and either allows full activation of the device 200 or allows partial activation of the device 200 or denies any activation of the device 200. This may occur based on a previously set behaviour by the authorised user, or based on the similarity between the detected signal and the known properties of the user.

[0030] Referring now to FIG. 3, there is shown a similar device 300 to the device 200 of FIG. 2. Similar features, to those features used in FIG. 2, are shown with the reference

numerals increased by 100. For example, the device 200 of FIG. 2 is similar to the device 300 of FIG. 3. Similar or identical features may not be discussed for conciseness.

[0031] The device 300 of FIG. 3 has control circuitry 320, detector 330 an inlet 312 and an outlet 314. The device 300 also has a communication module 340. The communication module 340 is for communicating with at least one of: a remote database; a remote computing arrangement; an onboard database; and, an onboard computing arrangement. The communication module 340 is arranged to send a signal to at least one of a remote database, a remote computing arrangement, an onboard database, and, an onboard computing arrangement in response to receipt of a signal from the control circuitry 320 associated with air output of a user.

[0032] In use therefore the detector 330 detects a signal associated with a property of the user's air outlet and provides this to the control circuitry 320. The control circuitry 320 may provide a corresponding signal to the communication module 340. The communication module 340 may communicate with an on board or remote database to compare the signal provided by the user to signals previously recorded for the user. This can provide a broader collection of results against which to compare the present signal. This increases the reliability of the arrangement in detecting the user. This also accounts better for gradual changes in air outlet of a user—rather than comparing against a provide exhalate provided in a setup phase which may have occurred a relatively long time prior to the present use request.

[0033] Alternatively or additionally, the signal may be sent to a remote or on board computing arrangement. The computing arrangement may utilise an artificial intelligence arrangement for assessing the user identity based on the signals received from the control circuitry 320 and those previously provided for authorised users of the device 300.

[0034] Alongside recognition of specific users, the present arrangement may account for age estimation of a user and prevent activation of the device 300 by those deemed of an unsuitable age. This may include those below an appropriate age to use the device 300. The signals may be associated with typical characteristics indicative of age, for example puff volume, puff duration, puff profile, and exhalate composition. If the device 300 detects that the user is not of an appropriate age, or the computing arrangement identifies a high likelihood that the user is not of an appropriate age, the device 300 may prevent access or require further authentication be conducted prior to access being given to the device 300. Methods for such further verification are known, such as “Monzo”-style verification. Such verification may occur using multiple authentication methods such as obtaining an image of a photographic identification document (e.g. passport or drivers licence or the like), and following this with obtaining a live video of the owner of said identification document. The video may involve the owner speaking a pre-requested phrase which may be unique to that individual, to further increase the difficulty of fraudulently satisfying the verification. The verification may utilise identity proofing, to assess claimed user identity against actual user identity. The photographic identification document contains an indication of age of the user. Multiple factor authentication is preferable to increase the reliability and safety of the system. Once this authentication is satisfied and

the user is deemed of an appropriate identity, the user's identity may be stored suitably to enable future use of the device 100.

[0035] In response to receipt of a signal from at least one of: a remote database; a remote computing arrangement; an onboard database; and, an onboard computing arrangement, the communication 340 is arranged to send a signal to the control circuitry 320. The control circuitry 320 then updates the activation state of the aerosol provision device 300 accordingly, fully enabling, partially enabling or preventing use of the device 300 (as appropriate).

[0036] Biometric data belonging to the owner of the device 300 may be stored on board so as to enable a rapid approval of the regular user of the device 300. This may be arranged on purchase of the device 300 where the owner can be age assessed by a vendor of the device 300, via presentation of identification or the like. While irregular users may be identified or age estimated against the database or the computing arrangement, details regarding the owner of the device 300 may be stored locally.

[0037] The present invention involves changing an activation state of the aerosol provision device. In an “operating state”, elements of the aerosol provision device 300 used to generate an aerosol (such as an atomiser, heater or the like) may be activated. The specific activation of the device 300 may require an additional input which may be inhalation on the device 300, pressing a button on the device 300 or the like. Alternatively, the device 300 may automatically generate aerosol by a heater in response to receiving an air output signal associated with a valid potential user. The control circuitry 320 may receive such a signal from the detector 330 and send a signal to the heater arrangement or the like to provide an aerosol from an aerosol generating material that may contained within, or separate to, the aerosol provision device 300.

[0038] The term “operating state” refers to a state in which the device 300 may be used to provide an aerosol. When the aerosol provision device 300 is combined with an aerosol generating material this is referred to herein as an aerosol provision system. The device 300 can provide a large number of “operating states”. Specific aerosol generating material consumables may provide a suitable aerosol for a user under a suitable heating profile (fast, slow, high temperature, low temperature, etc.) or via a suitable heating mechanism (heater element, atomiser, vibrating plate, etc.). As such specific, operating states may dictate the performance of the system, such as selecting the heating mechanisms used and the heating profile used based on the identified user—one user may be able to store a preferred heating profile to be associated with their biometric data. In this way, in response to identification of user 1, corresponding heating mechanism 1 is offered to provide heating profile 1 on the aerosol generating material. In response to identification of user 2, corresponding heating mechanism 2 may be offered to provide heating profile 2 on the aerosol generating material. In this way, different users are provided a bespoke aerosol, in response to recognition of that user. This improves the ease of use, and the use experience, of a device 300 for a user.

[0039] FIG. 4 shows a method 400 of use of an aerosol provision device. In the method 400, the device may start in a default state 402, which may be a non-operating state such that non-valid users cannot use the device. Alternatively, the

default operating state may be a restricted operating state where only partial operation of the device is possible.

[0040] When a user intends to use the aerosol provision device, the device detects a property of the air output of the user **404**. The device detects the property using a detector (which may contain a number of individual sensors/detectors, and which may be located in an inlet of the device). In the specific examples mentioned above these may include a flow sensor, volume sensor, time sensor, pressure sensor, and a compound sensor for sensing chemical compounds or the like. These individual sensors may be combined in an exhalate sensor.

[0041] In step **406**, there is an update of activation state of the aerosol provision device. This may take the form of updating the activation state to an operating state such as fully enabled for use, partially enabled for use or prevented from use. As discussed above, this change is based on the detected properties from the air output of the user. These are used to ascertain a suitability of use for the user based on the identity, or estimated age, of the user.

[0042] This method provides a user-friendly age verification process that provides suitable protection against invalid users while not impeding overly use for valid users. The method offers a balance between overly strict and overly lenient access protection for the device.

[0043] The term “in response to” is used herein to indicate a second event (such as a signal or change of state of an aerosol provision device) that occurs subsequent to a first event. The second event may occur at a later time, after a predetermined time, or immediately after the first event.

[0044] The device and system herein are described as comprising several components that enable several advantages. The components may be disclosed as on-board the device or within the system. The components may be distributed and therefore not necessarily be located on-board the device. The functionality of the device can be provided by communicatively connected components, and such communication may be wireless, enabling such distribution. At which point it is reasonable to foresee that a distributed array of components will operate in the manner of the devices and systems disclosed herein. Components of the device or system may be contained in a further device such as a smartphone, computer, or remote server or the like.

[0045] In a particular example, the device disclosed herein may operate with a flavour pod which is replaceable in the device—this may be referred to as a consumable. The flavour may be any of tobacco and glycol and may include extracts (e.g., licorice, hydrangea, Japanese white bark magnolia leaf, chamomile, fenugreek, clove, menthol, Japanese mint, aniseed, cinnamon, herb, wintergreen, cherry, berry, peach, apple, Drambuie, bourbon, scotch, whiskey, spearmint, peppermint, lavender, cardamon, celery, cascarrilla, nutmeg, sandalwood, bergamot, geranium, honey essence, rose oil, vanilla, lemon oil, orange oil, cassia, caraway, cognac, jasmine, ylang-ylang, sage, fennel, piment, ginger, anise, coriander, coffee, or a mint oil from any species of the genus *Mentha*), flavour enhancers, bitterness receptor site blockers, sensorial receptor site activators or stimulators, sugars and/or sugar substitutes (e.g., sucralose, acesulfame potassium, aspartame, saccharine, cyclamates, lactose, sucrose, glucose, fructose, sorbitol, or mannitol), and other additives such as charcoal, chlorophyll, minerals, botanicals, or breath freshening agents. They may be imitation, synthetic or natural ingredients or blends thereof.

[0046] When combined with an aerosol generating medium, the aerosol provision device as disclosed herein may be referred to as an aerosol provision system.

[0047] Thus there has been described an aerosol provision device, for providing an aerosol for inhalation by a user, comprising: control circuitry for controlling an activation state of the aerosol provision device; a detector arranged to detect an air output associated with a user of the aerosol provision device; wherein the control circuitry is arranged to update an activation state of the aerosol provision device in response to receiving a signal from the detector associated with an authorised user.

[0048] The aerosol provision system may be used in a tobacco industry product, for example a non-combustible aerosol provision system.

[0049] In one embodiment, the tobacco industry product comprises one or more components of a non-combustible aerosol provision system, such as a heater and an aerosolizable substrate.

[0050] In one embodiment, the aerosol provision system is an electronic cigarette also known as a vaping device.

[0051] In one embodiment the electronic cigarette comprises a heater, a power supply capable of supplying power to the heater, an aerosolizable substrate such as a liquid or gel, a housing and optionally a mouthpiece.

[0052] In one embodiment the aerosolizable substrate is contained in or on a substrate container. In one embodiment the substrate container is combined with or comprises the heater.

[0053] In one embodiment, the tobacco industry product is a heating product which releases one or more compounds by heating, but not burning, a substrate material. The substrate material is an aerosolizable material which may be for example tobacco or other non-tobacco products, which may or may not contain nicotine. In one embodiment, the heating device product is a tobacco heating product.

[0054] In one embodiment, the heating product is an electronic device.

[0055] In one embodiment, the tobacco heating product comprises a heater, a power supply capable of supplying power to the heater, an aerosolizable substrate such as a solid or gel material.

[0056] In one embodiment the heating product is a non-electronic article.

[0057] In one embodiment the heating product comprises an aerosolizable substrate such as a solid or gel material, and a heat source which is capable of supplying heat energy to the aerosolizable substrate without any electronic means, such as by burning a combustion material, such as charcoal.

[0058] In one embodiment the heating product also comprises a filter capable of filtering the aerosol generated by heating the aerosolizable substrate.

[0059] In some embodiments the aerosolizable substrate material may comprise an aerosol or aerosol generating agent or a humectant, such as glycerol, propylene glycol, triacetin or diethylene glycol.

[0060] In one embodiment, the tobacco industry product is a hybrid system to generate aerosol by heating, but not burning, a combination of substrate materials. The substrate materials may comprise for example solid, liquid or gel which may or may not contain nicotine. In one embodiment, the hybrid system comprises a liquid or gel substrate and a solid substrate. The solid substrate may be for example tobacco or other non-tobacco products, which may or may

not contain nicotine. In one embodiment, the hybrid system comprises a liquid or gel substrate and tobacco.

[0061] In order to address various issues and advance the art, the entirety of this disclosure shows by way of illustration various embodiments in which the claimed invention(s) may be practiced and provide for a superior electronic aerosol provision system. The advantages and features of the disclosure are of a representative sample of embodiments only, and are not exhaustive and/or exclusive. They are presented only to assist in understanding and teach the claimed features. It is to be understood that advantages, embodiments, examples, functions, features, structures, and/or other aspects of the disclosure are not to be considered limitations on the disclosure as defined by the claims or limitations on equivalents to the claims, and that other embodiments may be utilised and modifications may be made without departing from the scope and/or spirit of the disclosure. Various embodiments may suitably comprise, consist of, or consist essentially of, various combinations of the disclosed elements, components, features, parts, steps, means, etc. In addition, the disclosure includes other inventions not presently claimed, but which may be claimed in future.

1. An aerosol provision device, for providing an aerosol for inhalation by a user, comprising:

control circuitry for controlling an activation state of the aerosol provision device;

a detector arranged to detect an air output associated with a user of the aerosol provision device;

wherein the control circuitry is arranged to update an activation state of the aerosol provision device in response to receiving a signal from the detector associated with an authorised user.

2. An aerosol provision device according to claim 1, wherein the control circuitry is arranged to update an activation state of the aerosol provision device to a non-operating state in response to receiving signals from the detector associated with a non-authorised user.

3. An aerosol provision device according to claim 1, wherein the control circuitry is arranged to update an activation state of the aerosol provision device to an operating state in response to receiving signals from the detector associated with an authorised user.

4. An aerosol provision device according to claim 1, wherein the detector is arranged to detect a property of the air output associated with a user of the aerosol provision device, wherein the property is at least one of: air output speed; air output volume; air output chemical composition; and, time period between air outputs.

5. An aerosol provision device according to any preceding claim 1, further comprising:

an inlet for receiving airflow, wherein the detector is located in the inlet; and, an outlet for providing an inhalable aerosol to a user.

6. An aerosol provision device according to claim 5, wherein the inlet and outlet are integral.

7. An aerosol provision device according to claim 5, further comprising a moveable closure arranged to close at least a portion of the outlet when receiving airflow and close at least a portion of the inlet when providing inhalable aerosol.

8. An aerosol provision device according to claim 1, further comprising a communication module for communicating with at least one of: a remote database; a remote

computing arrangement; an onboard database; and, an onboard computing arrangement, the communication module arranged to send a signal to at least one of a remote database, a remote computing arrangement, an onboard database, and, an onboard computing arrangement in response to receipt of a signal from the control circuitry associated with air output of a user.

9. An aerosol-generating system, for providing an aerosol for inhalation by a user, comprising:

an aerosol provision device comprising control circuitry for controlling an activation state of the aerosol provision device; and,

a detector arranged to detect an air output associated with a user of the aerosol provision device;

wherein the control circuitry is arranged to update an activation state of the aerosol provision device in response to receiving a signal from the detector associated with an authorised user.

10. An aerosol-generating system according to claim 9, wherein the control circuitry is arranged to update an activation state of the aerosol provision device to a non-operating state in response to receiving signals from the detector associated with a non-authorised user.

11. An aerosol-generating system according to claim 9, wherein the control circuitry is arranged to update an activation state of the aerosol provision device to an operating state in response to receiving signals from the detector associated with an authorised user.

12. An aerosol-generating system according to claim 9, wherein the detector is arranged to detect a property of the air output associated with a user of the aerosol provision device, wherein the property is at least one of: air output speed; air output volume; air output chemical composition; and, time period between air outputs.

13. An aerosol-generating system according to claim 9, further comprising a communication module for communicating with at least one of: a remote database; a remote computing arrangement; an onboard database; and, an onboard computing arrangement,

the communication module arranged to send a signal to at least one of a remote database, a remote computing arrangement, an onboard database, and, an onboard computing arrangement in response to receipt of a signal from the control circuitry associated with air output of a user.

14. An aerosol-generating system according to claim 13, wherein the communication module is integral with the detector.

15. An aerosol-generating system according to claim 9, wherein the detector is integral with the aerosol provision device.

16. A method of providing an aerosol for inhalation by a user, the method comprising:

receiving an air output associated with a user of an aerosol provision device;

detecting, by a detector, the air output associated with a user of the aerosol provision device;

updating, by the control circuitry, an activation state of the aerosol provision device in response to receiving signals from the detector associated with an authorised user.

17. The method of claim 16, wherein updating, by the control circuitry, an activation state of the aerosol provision device comprises updating an activation state of the aerosol

provision device to a non-operating state in response to receiving signals from the detector associated with a non-authorised user.

18. The method of claim **16**, further comprising updating an activation state of the aerosol provision device to an operating state in response to receiving signals from the detector associated with an authorised user.

19. The method of claim **16**, wherein detecting, by a detector, the air output associated with the user of the aerosol provision device comprises

detecting, by a detector, a property of the air output associated with a user of the aerosol provision device, wherein the property is at least one of: air output speed; air output volume; air output chemical composition; and, time period between air outputs.

20. (canceled)

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