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(71) Applicant: **XEOTECH GMBH** [DE/DE]; Bergstraße 3, 82069 Hohenschäftlarn (DE).

(72) Inventors: **GOCH, Michael**; Oeltzenstraße 25, 30169 Hannover (DE). **MEDIC, Marko**; Deinfelder Straße 9, 92224 Amberg (DE).

(74) Agent: **GOTTSCHALD PATENTANWÄLTE MBB**; Klaus-Bunger-Straße 1, 40468 Duesseldorf (DE).

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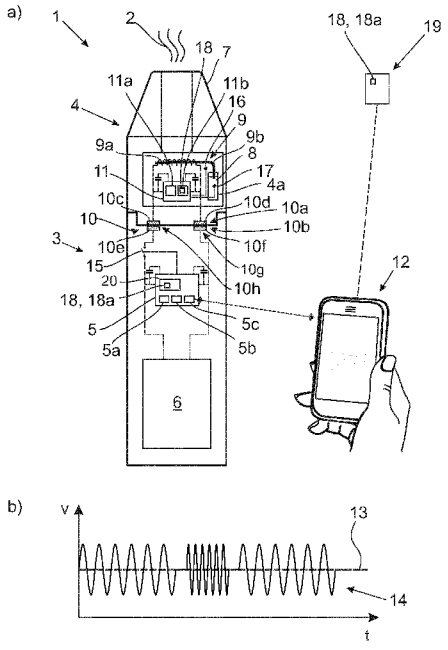

Fig. 1

(57) Abstract: The invention is directed to a method for operating an electronic vapor generation device (1) for generation of consumable vapor (2), the electronic vapor generation device (1) comprising a holder (3) and an exchangeable consumable cartridge (4), which can be attached to and detached from the holder (3), wherein the holder (3) comprises a holder controller (5) for controlling the electronic vapor generation device (1), wherein the consumable cartridge (4) comprises a consumable (8) and a heater (9) for heating the consumable (8) for generation of the consumable vapor (2), wherein an electric interface (10) between the holder (3) and the consumable cartridge (4) is provided for transferring electric energy from the holder (3) to the cartridge (4) for supplying the heater (9) with electric energy. It is proposed that the consumable cartridge (4) comprises a cartridge controller (5) which is connected to the electric interface (10) and in that information is communicated via the electric interface (10) between the cartridge controller (11) and the holder controller (5).

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Method for operating an electronic vapor generation device

The invention is directed to the method for operating an electronic vapor generation device for generation of consumable vapor according to the general part of claim 1, to a consumable cartridge of an electronic vapor generation device according to the general part of claim 14, to a holder of an electronic vapor generation device according to the general part of claim 15 and to an electronic vapor generation device according to the general part of claim 16.

Electronic vapor generation devices for users to inhale consumable vapor are well known in the art, for example, liquid vaporizers.

Liquid vaporizers usually comprise a consumable in the form of a liquid, which is vaporized with a heater. Usually the liquid is placed in a chamber of the electronic vapor generation device which also comprises a heater for vaporizing it. The heater is often designed as a heating coil and a wick is provided, which transports the liquid from a chamber to the coil, where it is vaporized.

In those cases, in which the cartridge can be attached to and detached from the holder, the cartridge usually comprises the chamber with the consumable and the heater. The energy for the heater is supplied from the holder to the heater via an electric interface.

In order to enhance the vaping experience of a user, the liquids and the heating of the liquids for vaporizing are optimized to each other. Also an abuse of the device for substances with counterfeit cartridges shall be prevented.

It is therefore the objective of the invention to improve the known methods for operating an electronic vapor generation device, such that a safe and satisfying consumption of consumable vapor is ensured.

The above noted object is solved for the method for operating an electronic vapor generation device according to the general part of claim 1 with the features of the characterizing part of claim 1.

By providing a consumable cartridge which comprises a cartridge controller which is connected to an electric interface, a communication between the cartridge controller and the holder controller can be achieved in a very cost-efficient manner. Further, a better vaping experience for the user can be ensured, for example, by enabling authentication of the cartridge and/or by enhancing the control of the heater through the communication between the cartridge controller and the holder controller.

In detail, it is proposed that the consumable cartridge comprises a cartridge controller which is connected to the electric interface and that information is communicated via the electric interface between the cartridge controller and the holder controller.

The effect of providing a consumable cartridge with a cartridge controller and of using the electric interface as a communication channel is to be able to provide a communication between the cartridge and the holder controller in a very cost-efficient manner. The electric interface can be used for energy supply and communication. In particular, it is possible to perform authentication of the consumable cartridge and/or the user prior to vaping. Additionally, information for controlling the heater can be provided from the cartridge to the holder controller to enhance the control of the heater.

In the preferred embodiment according to claim 2 the electric interface comprises a cartridge side with at least one contact and a holder side with at least one corresponding contact, which are electrically connected to each other when the cartridge is attached to the holder and which form a contact pair. Over at least one contact pair, energy for the heater is supplied as well as the respective information is communicated at least partly. This double use of at least one contact of the electric interface makes the interface very simple and the production of said cartridges cost-efficient. Generally, this double use of the electric interface between the holder and the cartridge not only allows to enhance the vaping experience by enabling the communication between the cartridge controller and the holder controller and by enabling authentication of the cartridge, it also provides this functionality at low cost. It is to be understood, that in addition to this contact pair, normally, at least another contact pair is foreseen,

which for example may provide an electrical reference potential such as a ground potential.

Preferably, two contact pairs are provided and the energy for the heater supplied as well as the information is communicated at least partly over both contact pairs. So to say, two contact pairs are used for supplying the heater with energy and also for the communication between the holder controller and the cartridge controller.

Further preferably, the energy for the heater is supplied via the electric interface as DC voltage (claim 3), preferably with a rechargeable battery arranged in the holder. By this, the electronic vapor generation device can be designed as a handheld device in a very simple manner.

The above noted information is preferably communicated between the cartridge controller and the holder controller in the form of a signal sequence switched onto the supply voltage of at least one contact of the electric interface (claim 4). This is a very simple way to realize the double function of the electric interface.

In a preferred embodiment, the cartridge controller is energized upon attachment of a cartridge and/or upon activation of the holder (claim 5). By this, an energy supply of the cartridge by the holder via the electric interface can be realized in a constructive simple and cost-efficient manner.

The features of claims 6 and 7 allow very efficient authentication of the cartridge and/or of the user. The authentication enables the identification of counterfeit cartridges and thereby to prevent the use of such cartridges and/or to display to the user that he uses a counterfeit cartridge.

In order to secure the communication between the consumable cartridge and the holder, the communication may be encrypted and/or decrypted as defined in one of the claims 8 to 11. This further increases the security of the authentication.

In a further preferred embodiment, the amount of puffs taken may be determined and stored in the cartridge controller. By this, a refill of the cartridges with

possibly counterfeit liquids can be identified and the use of such refilled cartridges can be prevented and/or displayed to the user.

In claim 13, a preferred method of control of the heater is described, which allows improved and cost-efficient control of the heater.

Another teaching according to claim 14 is directed to a consumable cartridge as such. Here it is of particular importance that the consumable cartridge comprises a cartridge controller which is connected to the electric interface and that the consumable cartridge is designed and configured for carrying out the method described. For further details with regard to this second teaching, reference is made to all explanations with regard to the first teaching.

Another teaching according to claim 15, which is of equal importance, is directed to a holder of an electronic vapor generation device as such. For further details with regard to this second teaching, reference is made to all explanations with regard to the prior teachings.

In a further teaching according to claim 16, which is of equal importance, is directed to an electronic vapor generation device. For further details with regard to this second teaching reference is made to all explanations with regard to the prior teachings.

In the following the invention will be described in an example referring to the drawing. In the drawing it is shown in

Fig. 1 a) a schematic view of a proposed electronic vapor generation device for performing the proposed method and b) an exemplary signal sequence for communication via the energy supply at the electric interface of the electronic vapor generation device.

The electronic vapor generation device 1 for generation of consumable vapor 2 shown in Fig. 1a) comprises a proposed holder 3 and a proposed exchangeable consumable cartridge 4. The electronic vapor generation device 1, the proposed holder 3 and the consumable cartridge 4 are designed and configured for carrying out the proposed method.

The holder 3 comprises a holder controller 5 for controlling the electronic vapor generation device 1. In the embodiment of Fig. 1, the holder 3 also comprises an in particular rechargeable battery 6. The consumable cartridge 4 is preferably battery-free.

The consumable cartridge 4 can be attached to and detached from the holder 3. In the embodiment of Fig. 1, the cartridge 4 comprises a mouthpiece 7 for inhaling the consumable vapor 2. Alternatively, the holder 3 may comprise the mouthpiece 7.

Here, the consumable cartridge 4 comprises a consumable 8 and a heater 9 for heating the consumable 8 for generation of the consumable vapor 2. The consumable vapor 2 can then be inhaled by the user via the mouthpiece 7.

The consumable cartridge 4 comprises a chamber 4a for a consumable 8. The consumable 8 is filled into the consumable cartridge 4, here into chamber 4a.

The consumable 8 may be a liquid, in particular a nicotine containing liquid. It may additionally or alternatively contain herbal ingredients and/or medicinal drugs and/or hemp oiland/or cut tobacco and/or cut herbs.

In the embodiment of Fig. 1, the heater 9 is designed as a heating coil 9a. A wick 9b transports the consumable 8 from the chamber 4a to the coil 9a, where it is vaporized for generation of the consumable vapor 2.

Furthermore, the electronic vapor generation device 1 comprises an electric interface 10 between the holder 3 and the consumable cartridge 4. With the electric interface 10, electric energy can be transferred from the holder 3 to the cartridge 4 for supplying the heater 9 with electric energy. The consumable cartridge 4 comprises the cartridge side 10a of the electric interface 10 and the holder 3 comprises the holder side 10b of the electric interface 10.

According to the invention, the consumable cartridge 4 comprises a cartridge controller 11. The cartridge controller 11 is connected to the electric interface 10 and information is communicated via the electric interface 10 between the

cartridge controller 11 and the holder controller 5. Through this, a double function of the electric interface 10 is provided, namely the energy supply of the consumable cartridge 4 and the communication between the cartridge controller 11 and the holder controller 5. This double functionality allows a very cost-competitive design of the electronic vapor generation device 1 and in particular of the exchangeable consumable cartridge 4. By this, on the one hand, a secure implementation of an authentication of the cartridge 4 is possible. On the other hand, the heating of the heater 9 may be optimized based on the communication between the cartridge controller 11 and the holder controller 5. This allows verification of the cartridge 4 and optimized control of the heater 9, both leading to a better vaping experience for the user.

The communication may be a one-way communication and/or two-way communication. Preferably, at least a communication from the cartridge controller 11 to the holder controller 5 takes place during operation of the electronic vapor generation device 1. This is explained in more detail further below.

It is to be understood, that the holder controller 5 may comprise a processor 5a and/or a memory 5b for carrying out the method. The holder controller 5 may be a microcontroller. Preferably, also a wireless unit 5c, preferably a Bluetooth chip, is provided for communication with a personal device 12 like a smartphone or the like. Over a wireless connection between the holder 3 and the personal device 12, the holder 3 may be updated.

The cartridge controller 11 preferably comprises a logic unit and/or a processor 11a for carrying out the method described. The cartridge controller 11 may be an integrated circuit. It may also comprise a memory 11b. For a cost-effective production of the cartridges 4, the cartridge controller 11 may be integrated into the cartridge during the moulding process of the cartridge 4 itself. Preferably, it may be overmoulded together with the contacts 10c, 10d of the cartridge side 10a of the electric interface 10.

In the embodiment of Fig. 1 and preferably, the cartridge side 10a of the electric interface 10 comprises at least one contact 10c, 10d and the holder side 10b of the electric interface 10 comprises at least one corresponding contact 10e, 10f.

The corresponding at least one contact 10e, 10f of the holder side 10b and at least one contact 10c, 10d of the cartridge side 10a are electrically connected to each other when the cartridge 4 is attached to the holder 3. They form a contact pair 10g, 10h. Over at least one contact pair 10g, 10h, energy for the heater 9 is supplied as well as information is communicated at least partly. In the embodiment of Fig. 1 and preferably, two contact pairs 10g, 10h are provided and energy for the heater 9 is supplied as well as the information is communicated at least partly via both contact pairs 10g, 10h. In the embodiment of Fig. 1 and preferably, only two contact pairs 10g, 10h are provided between the holder 3 and the consumable cartridge 4. However, additional contact pairs 10g, 10h may be provided in alternative embodiments. Also, the cartridge controller 11 is preferably supplied with energy by the holder 3 in the same manner.

Here and preferably, the energy for the heater 9 and/or for cartridge controller 11 is supplied via the electric interface 10 using DC voltage. In the embodiment of Fig. 1, one contact 10e of the electric interface 10 supplies a regular supply voltage 13 and another contact 10f of the electric interface 10 is regular ground.

The information communicated between the cartridge controller 11 and the holder controller 5 is preferably in the form of a signal sequence 14 switched onto the supply voltage 13 of at least one contact 10c, 10d, 10e, 10f of the electric interface 10. Here and preferably, it is the contact supplying the regular supply voltage. Additionally or alternatively, it may be the contact for regular ground. In an particularly preferred embodiment, the information communicated is split and transferred as a signal sequence partly on the contacts 10d, 10f for regular supply voltage and another part on the contacts 10c, 10e for regular ground. However, in another embodiment, only one contact pair 10h, comprising one contact 10e of the holder 3 and one corresponding contact 10c of the cartridge 4, may supply energy and be used for communicating the information. In this case, another contact pair 10g may be provided, for example a regular ground contact pair, which only supplies energy to the cartridge and does not participate in communicating the information.

It is to be noted, that the cartridge 4 may be designed, such that the contacts 10c, 10d, 10e, 10f being connected to each other may be switched between two attachments of the cartridge 4 to the holder 3 by rotating the cartridge 4 ac-

cordingly. It is to be noted, that such a switched attachment is preferably without implication on the operation on the electronic vapor generation device 1. Alternatively, such a switching may be prevented by a not shown mechanical anti-twist lock.

As can be seen in Fig. 1b) the signal sequence 14 may be frequency modulated for transferring the information. The frequency of the frequency modulation is preferably above 1 KHz and/or below 8 MHz. It may be for example in the range of 1 KHz to 16KHz and/or in the range of 100KHz to 2MHz and/or in the range of 1MHz to 8MHz. Additionally or alternatively, it may be amplitude modulated for transferring the information.

The information is here and preferably packed into a data package and the data package is transferred between the cartridge controller 11 and the holder controller 5 in the signal sequence 14.

Upon an attachment of the cartridge 4 to the holder 3 and/or upon activation of the holder 3, the cartridge controller 11 is energized, preferably at least for a predetermined time, in order to provide energy for the communication of information between the cartridge controller 11 and the holder controller 5. In the embodiment of Fig. 1, the cartridge controller 11 is energized by an energy burst of the holder 3. It is preferably shorter than 5 seconds, further preferably shorter than 3 seconds, further preferably around 1 second long.

The attachment of the consumable cartridge 4 is detected in the embodiment of Fig. 1 by a resistance measurement between the contacts 10e, 10f of the holder 3. Then energy may be provided as described before.

This energy enables the cartridge controller 11 to communicate information to the holder controller 5. Based on this, the cartridge 4 respectively the cartridge controller 11 may authenticate itself to the holder 3 respectively the holder controller 5.

For controlling the energy supply from the holder 3 to the cartridge 4, the holder 3 may comprise a switch 15. It is controlled by the holder controller 5. Preferably, the holder controller 5 can only regulate the energy supply of the heater 9

and the cartridge controller 11 in combination. If the holder controller 5 cuts the energy supply, for example via switch 15, the energy supply to the heater 9 as well the cartridge controller 11 is cut. This applies preferably also for an increase or a reduction of the energy supply.

For authentication of the cartridge 4 to the holder 3, an authentication routine is provided. In the authentication routine, the information communicated from the cartridge controller 11 to the holder controller 5 via the electric interface 10 is verified and only upon a successful authentication routine, energy is supplied by the holder 3 to the heater 9 for a vaping session. Preferably, if the authentication routine is not successful, the energy supply from the holder 3 to the heater 9 and/or the cartridge controller 11 is cut and/or reduced, for example by opening the switch 15. Thus, if the information communicated cannot be verified, the authentication routine is not successful and the holder 3 does not provide sufficient energy for conducting a vaping session comprising several puffs.

Additionally or alternatively, an interaction of the user may be requested after the authentication routine has been unsuccessful in order to initiate an energy supply sufficient for a vaping session. This interaction may be on the electronic vapor generation device 1 or on a personal device 12 connected to the electronic vapor generation device 1. By this, a user may overrule the authentication routine. However, he is informed that a non-original cartridge is used.

Here and preferably, the information communicated from the cartridge controller 11 to the holder controller 5 comprises an identification code and/or the date of production and/or a temperature and/or a viscosity and/or additional information. The identification code is here a unique cartridge identification number. The temperature may be a temperature sensed by a temperature sensor 16 of the cartridge 4. It may be a temperature sensor 16 for sensing the temperature of the heater 9 and/or the temperature of the consumable 8. The viscosity may be a viscosity of the consumable 8 sensed by a viscosity sensor 17 of the cartridge. The additional information may be additional information stored in the cartridge controller 11, for example, the amount of puffs taken from the cartridge 4.

Whereas communicating the temperature and/or viscosity the control of the heater 9 may be optimized for improving the vaping experience. Counting the number of puffs taken from cartridge 3 allows to detect whether the cartridge 4 may have been refilled without authentication. If the number of puffs taken exceeds a predefined number of puffs, the authentication routine may also be regarded as unsuccessful, in particular by the holder controller 5, leading to the consequences described above in connection with an unsuccessful authentication.

The information communicated from the cartridge controller 11 to the holder controller 5 may be at least partly encrypted. This increases the security of the communication and in particular of the authentication. It also makes it much more difficult to spoof the authentication and the use of counterfeit cartridges. In the embodiment of Fig. 1, the complete communication is encrypted.

The key 18 for encryption and/or the identification code and/or the date of production is preferably stored in the cartridge controller 11, in particular, the memory 11b, during the production process of the cartridge 4. Preferably, the storing takes place during an end of line test of the cartridge 4. The key 18 and/or a corresponding key 18a for decryption and/or the identification code and/or the date of production may also be stored in an external database 19.

In the embodiment of Fig. 1, all information sent from the cartridge controller 11 to the holder controller 5 is encrypted. Here end preferably, the encryption takes place on the data package level. The data package sent for authentication may at least comprise the identification code and/or the date of production. Additionally, it may comprise the temperature and/or the viscosity and/or the additional information. Alternatively, the temperature and/or the viscosity and/or the additional information may be sent in a separate data package. Preferrably, the majority of, in particular each, signal sequence respectively data package sent enables authentication of the cartridge 4.

The information communicated may be at least partly encrypted from the cartridge controller 11 to the holder controller 5 in two steps. In order to increase the security of the communication further, prior to encryption additional data may be added to the information to be encrypted. For example, the additional

data may be added between the first and the second step of encryption and/or prior to the first step of encryption.

In order to further secure the authentication and in order to prevent a reengineering, the signal sequence for authentication of one cartridge 4 to the holder 3 is different for at least five, preferably for at least twenty consecutive authentications. Most preferably, every signal sequence for authentication of one cartridge 4 to the holder 3 is unique, in particular in its lifetime during normal use of the cartridge 4. This may be achieved by adding additional data as described before. This additional data may be for example a timer information and/or a random number. The timer information may regard the time of energy supply to the cartridge controller 11. Preferably, the additional data is determined or generated by the cartridge controller 11.

In order to decrypt the information communicated the holder controller 5 comprises a key 18, 18a for decryption. This may be a corresponding key 18a for decryption to the key 18 of the cartridge 4 or it may be the same key 18 as the one of the cartridge attached to the holder 3.

Here and preferably, the holder 3 comprises a holder database 20 with a plurality of keys 18, 18a for decryption. At least one of those keys may enable the decryption of information communicated via the electric interface 10. For decryption, the holder controller 5 takes a first key 18, 18a from the holder database 20 and tries to decrypt the information communicated. If the decryption is not successful, the holder controller 5 continues to take another key 18, 18a from the holder database 20 and tries to decrypt the information communicated, until successful decryption of the information communicated. For final verification, the decrypted information may be compared with information stored in the holder controller 5 for the key 18, 18a used for decryption. This may be the identification code and/or the production date. If this comparison is correct, the verification of the information communicated is successful. This leads in the embodiment of Fig. 1 to a successful authentication.

The key 18, 18a respectively keys 18, 18a for decryption are preferably at least partly stored in the holder database 20 during the production of the holder 3, preferably during the end of line testing. The holder database 20 may be updat-

ed via the personal device 12 later on by the user. New keys 18, 18a may be added to the holder database 20 and other keys 18, 18a may be deleted from this database 20 during these updates. Not only the keys 18, 18a respectively corresponding keys 18, 18a for decryption may be stored and/or updated, preferably also the corresponding identification numbers and/or production dates are stored respectively updated in the holder database 20 of the holder controller 5. The keys 18, 18a respectively corresponding keys 18, 18a are preferably updated via the personal device 12 from the external database 19.

Additionally or alternatively, an authentication of the user is possible for example, an age verification may be implemented in this way. In this case, a key 18, 18a for decryption of the communication for a purchased cartridge 4 may only be provided to the holder 3, upon a successful age verification has been conducted. The age verification may be done via the mobile device 12 and the key 18, 18a may be provided to the personal device 12 for transferal to the holder 3. Once the key has been received by the holder controller 5, it can decrypt the information communicated and the authentication of the cartridge can be performed as described. The age verification may be done for example over the internet. Such services are already known for different applications.

Additionally and/or alternatively, the holder controller 5 may send information to the cartridge controller 11 allowing to determine the amount of puffs taken from the cartridge 4. Here and preferably, the holder controller 5 receives from the cartridge controller 5 the information regarding the amount of puffs taken from the cartridge 4. Preferably after each puff, it sends updated information about the amount of puffs taken from the cartridge 4 back to the cartridge controller 5 for updating the stored amount of puffs. Alternatively, the cartridge controller 5 may count and store the amount of puffs itself.

Here and preferably, the holder controller 5 controls the heating of the heater 9 by controlling the energy transferred and/or the voltage supplied to the cartridge. In the embodiment of Fig. 1, the energy transfer is controlled via the switch 15.

In a generally preferred embodiment, the heater 9 is controlled based on information communicated via the electric interface 10. This may be in particular the temperature and/or the viscosity communicated as described above.

It is to be noted, that the authentication routine is preferably carried out upon each attachment of a cartridge 4 to the holder 3 and/or upon each activation of the holder 4.

Claims

1. Method for operating an electronic vapor generation device (1) for generation of consumable vapor (2),
the electronic vapor generation device (1) comprising a holder (3) and an exchangeable consumable cartridge (4), which can be attached to and detached from the holder (3),
wherein the holder (3) comprises a holder controller (5) for controlling the electronic vapor generation device (1),
wherein the consumable cartridge (4) comprises a consumable (8) and a heater (9) for heating the consumable (8) for generation of the consumable vapor (2),
wherein an electric interface (10) between the holder (3) and the consumable cartridge (4) is provided for transferring electric energy from the holder (3) to the cartridge (4) for supplying the heater (9) with electric energy,
characterized in
that the consumable cartridge (4) comprises a cartridge controller (5) which is connected to the electric interface (10) and that information is communicated via the electric interface (10) between the cartridge controller (11) and the holder controller (5).

2. Method according to claim 1, characterized in that the electric interface (10) comprises a cartridge side (10a) with at least one contact (10c, 10d) and a holder side (10b) with at least one corresponding contact (10e, 10f), which are electrically connected to each other when the cartridge (4) is attached to the holder (3) and which form a contact pair (10g, 10h), wherein over at least one contact pair (10g, 10h) energy for the heater (9) is supplied as well as the information is communicated at least partly, preferably, that two contact pairs (10g, 10h) are provided and energy for the heater (9) is supplied as well as the information is communicated at least partly via both contact pairs (10g, 10h).

3. Method according to claim 1 or 2, characterized in that the energy for the heater (9) is supplied via the electric interface (10) as DC voltage, preferably, that one contact (10e) of the electric interface (10) supplies a regular supply voltage (13) and another contact (10f) of electric interface (10) is regular ground.

4. Method according to one of the previous claims, characterized in that the information is communicated between the cartridge controller (11) and the holder controller (5) in the form of a signal sequence (14) switched onto the supply voltage of at least one contact of the electric interface (10), in particular, that the signal sequence (14) is a frequency modulated and/or amplitude modulated.

5. Method according to one of the previous claims, characterized in that upon attachment of the cartridge (4) to the holder (3) and/or upon activation of the holder (3) the cartridge controller (11) is energized, preferably at least for a predetermined time, in order to provide energy for the communication of information between the cartridge controller (11) and the holder controller (5).

6. Method according to one of the previous claims, characterized in that an authentication routine is provided for authentication of the cartridge (4) to the holder (3) in which the information communicated from the cartridge controller (11) to the holder controller (5) via the electric interface (10) is verified and only upon a successful authentication routine energy is supplied by the holder (3) to the heater (9) for a vaping session, preferably, that if the authentication routine is not successful, the energy supply from the holder (3) to the heater (9) and/or cartridge controller (11) is cut and/or reduced.

7. Method according to one of the previous claims, characterized in that the information communicated from the cartridge controller (11) to the holder controller (5) comprises an identification code and/or a date of production and/or a temperature and/or a viscosity and/or additional information stored in the cartridge controller, preferably, the additional information stored in the amount of puffs taken from the cartridge (4).

8. Method according to one of the previous claims, characterized in that the information communicated from the cartridge controller (11) to the holder controller (5) is at least partly encrypted, preferably, that the information communicated from the cartridge controller (11) to the holder controller (5) is at least partly encrypted in two steps.

9. Method according to one of the previous claims, characterized in that prior to an encryption, additional data is added to the information to be encrypted, preferably, that the additional data is added between the first and second step of encryption and/or prior to the first step of encryption.

10. Method according to one of the previous claims, characterized in that the signal sequence for authentication of one cartridge (4) to the holder (3) is different for at least five, preferably at least twenty, consecutive authentications, further preferably, that every signal sequence (14) for authentication of one cartridge (4) to the holder (3) is unique.

11. Method according to one of the previous claims, characterized in that the holder controller comprises a holder database (20) with a plurality of keys (18, 18a) for decryption,
wherein at least one of those keys (18, 18a) enables the decryption of the information communicated via the electric interface (10),
wherein holder controller (4) takes a first key (18) from the holder database (20) and tries to decrypt the information communicated,
if the decryption not successful, the holder controller (5) continues to take another key (18, 18a) from the holder database (20) and tries to decrypt the information communicated until successful decryption of the information communicated.

12. Method according to one of the previous claims, characterized in that the holder controller (5) sends information to the cartridge controller (11) allowing to determine the amount of puffs taken from the cartridge (4), preferably, that the holder controller (5) receives the information of the amount of puffs taken from the cartridge (4) from the cartridge controller and, preferably after each puff, sends an updated information about the amount of puffs taken from the cartridge (4) back to the cartridge controller (11) for updating the stored amount of puffs.

13. Method according to claim one of the previous claims, characterized in that the holder controller (5) controls the heating of the heater (9) by controlling the energy transferred and/or the voltage supplied to the cartridge (4), preferably, that the heater (9) is controlled based on information communicated via the

electric interface (10) from the cartridge controller (11) to the holder controller (5).

14. Consumable cartridge of an electronic vapor generation device (1) for generation of consumable vapor (2), the consumable cartridge (4) being attachable to and detachable from a holder (3) of the electronic vapor generation device (1),
the consumable cartridge (4) comprising a chamber (4a) for a consumable (8), a heater (9) for heating the consumable from the chamber (4a) for generation of the consumable vapor (2) and a cartridge side (10a) of an electric interface (10) to the holder (3) for transferring electric energy from the holder (3) to the consumable cartridge (4) for supplying the heater (9) with electric energy,
characterized in
that the consumable cartridge (4) comprises a cartridge controller (11) which is connected to the electric interface (10) and that the consumable cartridge (4) is designed and configured for carrying out a method according to one of the previous claims.

15. Holder of an electronic vapor generation device (1) for generation of consumable vapor (2), wherein an exchangeable consumable cartridge (4) is attachable and detachable from the holder (3),
wherein the holder (3) comprises a holder controller (5) for controlling the electronic vapor generation device (1) and a holder side (10b) of an electric interface (10) to the consumable cartridge (4) for transferring electric energy from the holder (3) to the consumable cartridge (4) for supplying the heater (9) of the cartridge (4) with electric energy,
characterized in
that the holder (3) is designed and configured for carrying out a method according to one of claims 1 to 13.

16. Electronic vapor generation device for generation of consumable vapor (2), the electronic vapor generation device (1) comprising a holder (3) and an exchangeable consumable cartridge (4), which can be attached to and detached from the holder (3),
wherein the holder (3) comprises a holder controller (5) for controlling the electronic vapor generation device (1),

wherein the consumable cartridge (4) comprises a consumable (8) and a heater (9) for heating the consumable (8) for generation of the consumable vapor (9),
wherein an electric interface (10) between the holder (3) and the consumable cartridge (4) is provided for transferring electric energy from the holder (3) to the cartridge (4) for supplying the heater (9) with electric energy,
characterized in
that the consumable cartridge (4) comprises a cartridge controller (11) which is connected to the electric interface (10) and that information is communicated via the electric interface (10) between the cartridge controller (11) and the holder controller (5).

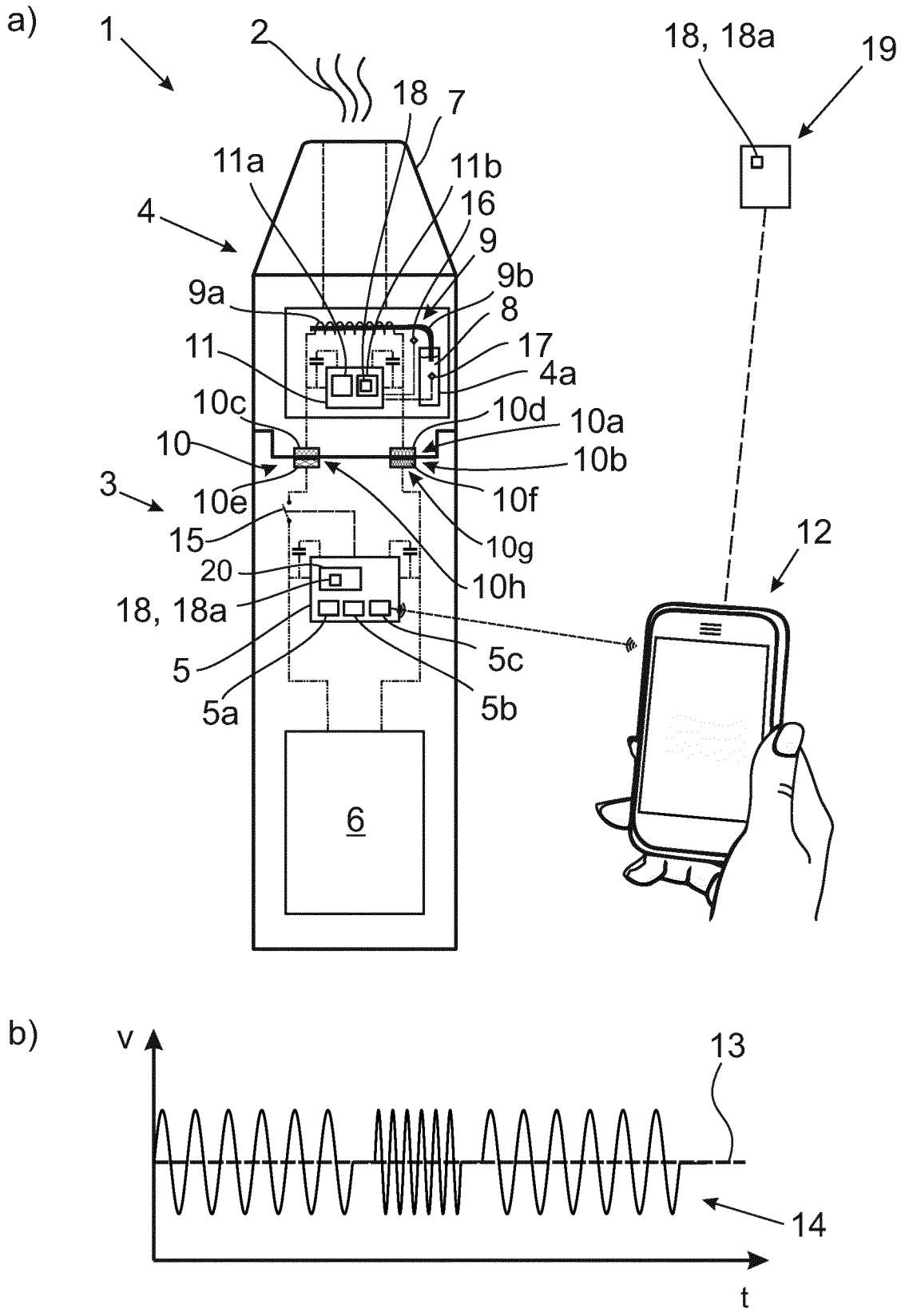
a)
1
2
18
7
11a
11b
16
4
9
9b
9a
8
11
17
4a
10c
10d
10a
10
10b
3
10e
10f
15
10g
20
10h
18, 18a
5
5c
5a
5b
6
18, 18a
19
12
b)
v
13
14
t

Fig. 1

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2020/071686

A. CLASSIFICATION OF SUBJECT MATTER
INV. A24F40/53 A24F40/65 A24F40/42
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A24F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
23 September 2020	02/10/2020

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Coniglio, Carlo

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Form PCT/ISA/210 (second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2020/071686

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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