an ability to influence one or more of a variety of operating parameters, which may include without limitation any of causing the heater to be turned on and/or off, adjusting a minimum and/or maximum temperature to which the heater is heated during operation, various games or other interactive features that a user might access on a device, and/or other operations.

[9] Various vaporizable materials having a variety of contents and proportions of such contents can be contained in the cartridge. Some vaporizable materials, for example, may have a smaller percentage of active ingredients per total volume of vaporizable material, such as due to regulations requiring certain active ingredient percentages. As such, a user may need to vaporize a large amount of vaporizable material (e.g., compared to the overall volume of vaporizable material that can be stored in a cartridge) to achieve a desired effect.

SUMMARY

[10] In certain aspects of the current subject matter, challenges associated with the presence of liquid vaporizable materials in or near certain susceptible components of an electronic vaporizer device may be addressed by inclusion of one or more of the features described herein or comparable/equivalent approaches as would be understood by one of ordinary skill in the art. In one aspect, there is provided a vaporizer device and cartridge for the vaporizer device, the cartridge including: a cartridge housing, the cartridge housing configured to extend below an open top of a receptacle in the vaporizer device when the cartridge is coupled with the vaporizer device; a reservoir disposed within the cartridge housing, the reservoir configured to contain a vaporizable material; a wick housing disposed within the cartridge housing; a heating element, the heating element including a heating portion disposed at least partially inside the wick housing and a contact portion disposed at least partially outside the wick housing, the contact portion including one or more cartridge contacts configured to form an electric coupling with one or more receptacle contacts in the receptacle of the vaporizer device; and a wicking element disposed within the wick housing and proximate to the heating portion of the heating element, the wicking element configured to draw the vaporizable material from the reservoir to the wick housing for vaporization by the heating element, wherein the receptacle includes a first portion of a body of the vaporizer device having a smaller cross-sectional dimension than a second portion of the body of the vaporizer device, and wherein the receptacle configured to receive the wick housing of the cartridge with the cartridge housing extending below the open top of the receptacle when the cartridge is coupled with the vaporizer device..

[11] In some variations, one or more features disclosed herein including the following features may optionally be included in any feasible combination. The contact portion may be further configured to form a mechanical coupling with the receptacle of the vaporizer device. The mechanical coupling may secure the cartridge in the receptacle of the vaporizer device.

[12] In some variations, the receptacle may be a first portion of a body of the vaporizer device having a smaller cross-sectional dimension than a second portion of the body of the vaporizer device. A recessed area may be formed between the cartridge housing and the second portion of the body of the vaporizer device when the cartridge is coupled with the vaporizer device.

[13] In some variations, the receptacle may include one or more air inlets that form a fluid coupling with one or more slots in a bottom of the wick housing when the cartridge is coupled with the vaporizer device. The one or more slots may be configured to allow air entering the one or more air inlets to further enter the wick housing. The one or more air inlets may be disposed in the recessed area. The one or more air inlets may have a diameter of between approximately 0.6 millimeters and 1.0 millimeters.

[14] In some variations, an interior of each of the one or more slots may include at least one step formed by an inner dimension of the one or more slots being less than a dimension of the one or more slots at the bottom of the wick housing. The at least one step may provide a constriction point at which a meniscus forms to prevent the vaporizable material in the wick housing from flowing out of the one or more slots. The dimension of the one or more slots at the bottom of the wick housing may be approximately 1.2 millimeters long by 0.5 millimeters wide. The inner dimension of the one or more slots may be approximately 1 millimeters long by 0.3 millimeters wide.

[15] In some variations, the heating portion of the heating element and the contact portion of the heating element may be formed by folding a substrate material. The substrate material may be cut to include one or more tines for forming the heating portion of the heating element. The substrate material may be further cut to include one or more legs for forming the contact portion of the heating element.

[16] In some variations, the contact portion of the heating element may be formed by folding each of the one or more legs to form at least a first joint, a second joint, and a third joint. The first joint may be disposed between the second joint and the third joint. The second joint may be disposed between a tip of each of the one or more legs and the first joint.

[17] In some variations, the one or more cartridge contacts may be disposed at the second joint. The heating element may be secured to the wicking housing by a first mechanical coupling

between an exterior of the wick housing and a portion of each of the one or more legs between the first joint and the third joint. The cartridge may be secured to the receptacle of the vaporizer device by a second mechanical coupling between the second joint and the receptacle of the vaporizer device.

[18] In some variations, the one or more cartridge contacts may be disposed at the first joint. The heating element may be secured to the wick housing by a first mechanical coupling between an exterior of the wick housing and a portion of each of the one or more legs between the tip and the second joint. The cartridge may be secured to the receptacle of the vaporizer device by a second mechanical coupling between the first joint and the receptacle of the vaporizer device.

[19] In some variations, the reservoir may include a storage chamber and a collector. The collector may include an overflow channel configured to retain a volume of the vaporizable material in fluid contact with the storage chamber. One or more microfluidic features may be disposed along a length of the overflow channel. Each of the one or more microfluidic features may be configured to provide a constriction point at which a meniscus forms to prevent air entering the reservoir from passing the vaporizable material in the overflow channel.

[20] In some variations, the cartridge housing may include an airflow passageway leading to an outlet for an aerosol that is formed by the heating element vaporizing the vaporizable material. The collector may include a central tunnel in fluid communication with the airflow passageway. A bottom surface of the collector may include a flow controller configured to mix the aerosol generated by the heating element vaporizing the vaporizable material.

[21] In some variations, an interior surface of the airflow passageway may include one or more channels that extend from the outlet to the wicking element. The one or more channels may be configured to collect a condensate formed by the aerosol and direct at least a portion the collected condensate towards the wicking element.

[22] In some variations, the flow controller may include a first channel and a second channel. The first channel may be offset from the second channel. A first interior surface of the first channel may be sloped in a different direction from a second interior surface of the second channel to direct a first column of the aerosol entering the central tunnel through the first channel in a different direction than a second column of the aerosol entering the central tunnel through the second channel.

[23] In some variations, the bottom surface of the controller may further include one or more wick interfaces. The one or more wick interfaces may be in fluid communication with one or

more wick feeds in the collector. The one or more wick feeds may be configured to deliver, to the wicking element disposed in the wick housing, at least a portion of the vaporizable material contained in the storage chamber.

[24] In some variations, the wick housing may be disposed at least partially inside the receptacle of the vaporizer device when the cartridge is coupled with the vaporizer device. A flange is disposed at least partially around an upper perimeter of the wick housing. The flange may extend over at least a portion of a rim of the cartridge receptacle.

[25] In some variations, the vaporizer device including the receptacle including the first portion of a body of the vaporizer device, the receptacle including one or more receptacle contacts, the one or more receptacle contacts configured to form an electric coupling with one or more cartridge contacts comprising the contact portion of the heating element in the cartridge, the contact portion disposed at least partially outside the wick housing; a power source disposed at least partially within the second portion of the body of the vaporizer device; and a controller configured to control a discharge of an electric current from the power source to the heating element included in the cartridge when the cartridge is coupled with the vaporizer device, the electric current being discharged to the heating element to vaporize at least a portion of the vaporizable material saturating a wicking element disposed within the wick housing and proximate to a heating portion of the heating element

[26] In some variations, one or more features disclosed herein including the following features may optionally be included in any feasible combination. The receptacle may be further configured to form a mechanical coupling with the contact portion of the heating element, and wherein the mechanical coupling secures the cartridge in the receptacle of the vaporizer device.

[27] In some variations, the first portion of the body of the vaporizer device may have a smaller cross-sectional dimension than the second portion of the body of the vaporizer device. A recessed area may be formed between the second portion of the body of the vaporizer device and the cartridge housing when the cartridge is coupled with the vaporizer device.

[28] In some variations, the receptacle may include one or more air inlets that form a fluid coupling with one or more slots in a bottom of the wick housing when the cartridge is coupled with the vaporizer device. The one or more slots may be configured to allow air entering the one or more air inlets to further enter the wick housing. The one or more air inlets may be disposed in the recessed area. The one or more air inlets may have a diameter between approximately 0.6 millimeters and 1.0 millimeters.

[29] In some variations, the receptacle may be disposed within the first portion of the body of the vaporizer device such that a top rim of the receptacle is substantially flush with a top rim of the first portion of the body of the vaporizer device.

[30] In some variations, the receptacle may be configured receive a portion of the wick housing such that a flange disposed at least partially around an upper perimeter of the wick housing extends over at least a portion of the top rim of the cartridge receptacle and/or the top rim of the first portion of the body of the vaporizer device. The receptacle may be approximately 4.5 millimeters deep.

[31] The details of one or more variations of the subject matter described herein are set forth in the accompanying drawings and the description below. Other features and advantages of the subject matter described herein will be apparent from the description and drawings, and from the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[32] The accompanying drawings, which are incorporated in and constitute a part of this specification, show certain aspects of the subject matter disclosed herein and, together with the description, help explain some of the principles associated with the disclosed implementations. In the drawings:

[33] FIG. 1 depicts a block diagram illustrating an example of a vaporizer consistent with implementations of the current subject matter;

[34] FIG. 2A depicts a planar cross-sectional view of an example of a cartridge having a storage chamber and an overflow volume consistent with implementations of the current subject matter;

[35] FIG. 2B depicts a planar cross-sectional view of an example of a cartridge having a storage chamber and an overflow volume consistent with implementations of the current subject matter;

[36] FIG. 3A depicts a perspective view of a cartridge having one example of a connector consistent with implementations of the current subject matter;

[37] FIG. 3B depicts a perspective view of a cartridge having another example of a connector consistent with implementations of the current subject matter;

Claims

1. A vaporizer device and cartridge for the vaporizer device, the cartridge comprising:

a cartridge housing, the cartridge housing configured to extend below an open top of a receptacle in the vaporizer device when the cartridge is coupled with the vaporizer device;

a reservoir disposed within the cartridge housing, the reservoir configured to contain a vaporizable material;

a wick housing disposed within the cartridge housing;

a heating element, the heating element including a heating portion disposed at least partially inside the wick housing and a contact portion disposed at least partially outside the wick housing, the contact portion including one or more cartridge contacts configured to form an electric coupling with one or more receptacle contacts in the receptacle of the vaporizer device; and

a wicking element disposed within the wick housing and proximate to the heating portion of the heating element, the wicking element configured to draw the vaporizable material from the reservoir to the wick housing for vaporization by the heating element,

wherein the receptacle comprises a first portion of a body of the vaporizer device having a smaller cross-sectional dimension than a second portion of the body of the vaporizer device, and

wherein the receptacle configured to receive the wick housing of the cartridge with the cartridge housing extending below the open top of the receptacle when the cartridge is coupled with the vaporizer device.

2. The vaporizer device and cartridge of claim 1, wherein the contact portion is further configured to form a mechanical coupling with the receptacle of the vaporizer device, and wherein the mechanical coupling secures the cartridge in the receptacle of the vaporizer device.

3. The vaporizer device and cartridge of any of claims 1-2, wherein a recessed area is formed between the cartridge housing and the second portion of the body of the vaporizer device when the cartridge is coupled with the vaporizer device.

4. The vaporizer device and cartridge of any of claims 1-3, wherein the receptacle includes one or more air inlets that form a fluid coupling with one or more slots in a bottom of the wick housing when the cartridge is coupled with the vaporizer device, wherein the one or more slots

are configured to allow air entering the one or more air inlets to further enter the wick housing, and wherein the one or more air inlets are disposed in the recessed area.

5. The vaporizer device and cartridge of claim 4, wherein the one or more air inlets have a diameter between 0.6 millimeters and 1.0 millimeters.

6. The vaporizer device and cartridge of any of claims 4-5, wherein an interior of each of the one or more slots include at least one step formed by an inner dimension of the one or more slots being less than a dimension of the one or more slots at the bottom of the wick housing, and wherein the at least one step provides a constriction point at which a meniscus forms to prevent the vaporizable material in the wick housing from flowing out of the one or more slots.

7. The vaporizer device and cartridge of claim 6, wherein the dimension of the one or more slots at the bottom of the wick housing is 1.2 millimeters long by 0.5 millimeters wide, and wherein the inner dimension of the one or more slots is 1.0 millimeters long by 0.30 millimeters wide.

8. The vaporizer device and cartridge of any of claims 1-7, wherein the wick housing is disposed at least partially inside the receptacle of the vaporizer device when the cartridge is coupled with the vaporizer device, wherein a flange is disposed at least partially around an upper perimeter of the wick housing, and wherein the flange extends over at least a portion of a rim of the cartridge receptacle.

9. The vaporizer device and cartridge of any of claims 1 to 8, the vaporizer device comprising:

the receptacle comprising the first portion of a body of the vaporizer device, the receptacle including one or more receptacle contacts, the one or more receptacle contacts configured to form an electric coupling with one or more cartridge contacts comprising the contact portion of the heating element in the cartridge, the contact portion disposed at least partially outside the wick housing;

a power source disposed at least partially within the second portion of the body of the vaporizer device; and

a controller configured to control a discharge of an electric current from the power source to the heating element included in the cartridge when the cartridge is coupled with the vaporizer device, the electric current being discharged to the heating element to vaporize at

least a portion of the vaporizable material saturating a wicking element disposed within the wick housing and proximate to a heating portion of the heating element.

10. The vaporizer device and cartridge of claim 9, wherein the receptacle is further configured to form a mechanical coupling with the contact portion of the heating element, and wherein the mechanical coupling secures the cartridge in the receptacle of the vaporizer device.

11. The vaporizer device and cartridge of any of claims 9-10, wherein the first portion of the body of the vaporizer device has a smaller cross-sectional dimension than the second portion of the body of the vaporizer device, and wherein a recessed area is formed between the second portion of the body of the vaporizer device and the cartridge housing when the cartridge is coupled with the vaporizer device.

12. The vaporizer device and cartridge of claim 11, wherein the receptacle includes one or more air inlets that form a fluid coupling with one or more slots in a bottom of the wick housing when the cartridge is coupled with the vaporizer device, wherein the one or more slots are configured to allow air entering the one or more air inlets to further enter the wick housing, and wherein the one or more air inlets are disposed in the recessed area.

13. The vaporizer device and cartridge of any of claims 11-12, wherein the one or more air inlets have a diameter between 0.6 millimeters and 1.0 millimeters.

14. The vaporizer device and cartridge of any of claims 1-13, wherein the receptacle is disposed within the first portion of the body of the vaporizer device such that a top rim of the receptacle is substantially flush with a top rim of the first portion of the body of the vaporizer device.

15. The vaporizer device and cartridge of any of claims 1-14, wherein the receptacle is configured receive a portion of the wick housing such that a flange disposed at least partially around an upper perimeter of the wick housing extends over at least a portion of the top rim of the cartridge receptacle and/or the top rim of the first portion of the body of the vaporizer device.

16. The vaporizer device and cartridge of any of claims 1-15, wherein the receptacle is 4.5 millimeters deep.