

CLAIMS

What is claimed is:

1. A cartridge for a 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.
2. The 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 cartridge of any of claims 1-2, 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 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 cartridge of claim 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 cartridge of claim 4, wherein the one or more air inlets have a diameter

between approximately 0.6 millimeters and 1.0 millimeters.

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

8. The cartridge of any of claims 1-7, wherein the heating portion of the heating element and the contact portion of the heating element are formed by folding a substrate material, wherein the substrate material is cut to include one or more times for forming the heating portion of the heating element, and wherein the substrate material is further cut to include one or more legs for forming the contact portion of the heating element.

9. The cartridge of claim 8, wherein the contact portion of the heating element is formed by folding each of the one or more legs to form at least a first joint, a second joint, and a third joint, wherein the first joint is disposed between the second joint and the third joint, and wherein the second joint is disposed between a tip of each of the one or more legs and the first joint.

10. The cartridge of claim 9, wherein the one or more cartridge contacts are disposed at the second joint, wherein the heating element is 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, and wherein the cartridge is secured to the receptacle of the vaporizer device by a second mechanical coupling between the second joint and the receptacle of the vaporizer device.

11. The cartridge of any of claims 9, wherein the one or more cartridge contacts are disposed at the first joint, wherein the heating element is 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, and wherein the cartridge is secured to the

receptacle of the vaporizer device by a second mechanical coupling between the first joint and the receptacle of the vaporizer device.

12. The cartridge of any of claims 1-11, wherein the reservoir includes a storage chamber and a collector, wherein the collector comprises an overflow channel configured to retain a volume of the vaporizable material in fluid contact with the storage chamber, wherein one or more microfluidic features are disposed along a length of the overflow channel, and wherein each of the one or more microfluidic features are 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.

13. The cartridge of claim 12, wherein the cartridge housing includes an airflow passageway leading to an outlet for an aerosol that is formed by the heating element vaporizing the vaporizable material, wherein the collector includes a central tunnel in fluid communication with the airflow passageway, and wherein a bottom surface of the collector includes a flow controller configured to mix the aerosol generated by the heating element vaporizing the vaporizable material.

14. The cartridge of claim 13, wherein an interior surface of the airflow passageway includes one or more channels that extend from the outlet to the wicking element, and wherein the one or more channels are configured to collect a condensate formed by the aerosol and direct at least a portion the collected condensate towards the wicking element.

15. The cartridge of any of claims 13-14, wherein the flow controller includes a first channel and a second channel, wherein the first channel is offset from the second channel, and wherein a first interior surface of the first channel is 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.

16. The cartridge of any of claims 13-15, wherein the bottom surface of the controller further includes one or more wick interfaces, wherein the one or more wick interfaces are in fluid communication with one or more wick feeds in the collector, and wherein the one or more wick feeds are 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.

17. The cartridge of any of claims 1-16, 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.

18. A vaporizer device, the vaporizer device comprising:

a receptacle comprising a first portion of a body of the vaporizer device, the receptacle including one or more receptacle contacts, the receptacle configured to receive a wick housing of a cartridge containing a vaporizable material when the cartridge is coupled with the vaporizer device, a housing of the cartridge extending below an open top of the receptacle when the cartridge is coupled with the vaporizer device, the one or more receptacle contacts configured to form an electric coupling with one or more cartridge contacts comprising a contact portion of a heating element in the cartridge, the contact portion disposed at least partially outside the wick housing;

a power source disposed at least partially within a 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.

19. The vaporizer device of claim 18, 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.

20. The vaporizer device of any of claims 18-19, 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.

21. The vaporizer device of claim 20, 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.

22. The vaporizer device of any of claims 20-21, wherein the one or more air inlets have a diameter between approximately 0.6 millimeters and 1.0 millimeters.

23. The vaporizer device of any of claims 18-22, 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.

24. The vaporizer device of claim 23, 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.

25. The vaporizer device of any of claims 18-24, wherein the receptacle is approximately 4.5 millimeters deep.