

SMOKELESS CIGARETTE SYSTEM

FIELD OF THE INVENTION

A lighter for using cigarettes in a smokeless manner is disclosed. The lighter can accommodate conventional cigarettes, a flavor cartridge, or both.

SUMMARY OF THE INVENTION

A smokeless cigarette lighter may include a generally cylindrical heating arrangement operable to define a generally cylindrical chamber and to maintain the temperature in that chamber between 160° and 200°. The lighter may also include a generally cylindrical jacket surrounding the heating arrangement and being operable to maintain the external temperature of the lighter at or below 40°C, surface temperatures that will not burn the smoker's hand. One end of the jacket defines an opening sized to accept a smoking article, such as a cigarette or cigar. The other end of the jacket connects with an air supply manifold. The air supply manifold connects with a power supply arrangement operable to energize the heating means, to optionally contain the related electronic circuitry, and to optionally simulate glowing tobacco.

To preserve the life of the power supply arrangement, as well as to ensure self-extinction operation of the lighter, a timer circuit may be provided which terminates the supply of energy to the heating arrangement after a period of time correlated to the time associated with burning of a typical smoking article.

To initiate operation of the lighter, a switch may be provided which becomes engaged by a smoking article. Alternatively, or conjunctively, a manually operable switch may be provided so that the smoker can initiate lighter operation or override its electronic circuitry.

If desired, the lighter may also include a glow-indicator light coupled with circuitry operable to sense air flowing through the lighter and to illuminate the glow-indicator light in response to that event.

According to one aspect of the invention there is provided a lighter comprising: generally cylindrical heater defining a generally

cylindrical chamber, an air supply opening, and an entrance sized to receive at least an end portion of a smokable article, such as a cigarette, the heater being operable to maintain a substantially uniform temperature in the generally cylindrical chamber, the temperature being below the ignition temperature of tobacco, and lying in the range of about 160°C to about 200°C; an insulating jacket substantially surrounding the generally cylindrical heater, having an external surface, being fashioned from a thermally insulating material, and having a thickness selected such that the temperature of the external surface remains below 40°C; power supply operable to supply electrical energy to the heater; and circuitry operable to control the duration of electrical energy delivered by the power supply to the heater.

Preferably, the generally cylindrical chamber of the heater has a transverse dimension corresponding to the nominal diameter of a cigarette or cigar. Also preferably, the generally cylindrical chamber has a length corresponding to the length of the tobacco rod of a conventional cigarette.

According to another aspect of the invention there is provided a lighter comprising: a heater defining a generally cylindrical chamber, an air supply opening, and an entrance sized to accommodate at least an end portion of a smokable article, the heater being operable to maintain a temperature in the generally cylindrical chamber in the range of 160°C to 200°C; a jacket substantially surrounding the heater, having an external surface, being fashioned from a thermally insulating material, and having a thickness selected such that the temperature of the external surface remains below 40°C; a power supply operable to supply electrical energy to the heater; and circuitry operable to control the duration of electrical energy delivered by the power supply to the heater to a period of about 10 to about 12 minutes.

According to another aspect of the invention there is provided a smokeless cigarette lighter comprising: heater defining a generally cylindrical chamber with a transverse dimension corresponding to the nominal diameter and length of a cigarette, the heater further including an air supply opening, and an entrance sized to accommodate the cigarette, the heater being operable to receive the cigarette and

to maintain a temperature in the generally cylindrical chamber in the range of 160°C to 200°C; a jacket substantially surrounding the heater, having an external surface, being fashioned from a thermally insulating material, and having a thickness selected such that the temperature of the external surface remains below about 40°C; a power supply operable to supply electrical energy to the heater; and circuitry operable to control the duration of electrical energy delivered by the power supply to the heater to a period of about 10 to about 12 minutes.

Preferably, lighters according to the invention include a puff-indicator operable to sense airflow into the heater and to generate a signal during periods of increased airflow. Also preferably, the circuitry includes a manually actuatable switch to initiate operation of the heater independently of the timing circuit. Also preferably, the circuitry includes a switch actuated in response to the presence of an the smokable article in the generally cylindrical chamber of the heater. Also preferably, the generally cylindrical chamber of the heater has a transverse dimension corresponding to the nominal diameter of a cigarette. Also preferably, lighters according to the invention include an aerosol generating flavor cartridge in the chamber.

According to another aspect of the invention there is provided a system for smokeless enjoyment of a smoking article comprising: at least one smokable article; a lighter having an opening sized to receive at least an end portion of the smokable article, including an insulating jacket, and heating apparatus operable to maintain a preselected temperature within the opening, the preselected temperature being in the range of about 160°C to about 200°C; and a power supply operable to supply electrical energy to the heating apparatus.

Preferably, the lighter of the system further includes a puff sensor effective to sense air flow changes through the lighter. Also preferably, the heating apparatus of the lighter is actuated for a predetermined time period, wherein the smokable article initiates the predetermined time period, and wherein the puff sensor resets the predetermined time period.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a smokeless cigarette lighter.

FIG. 2 is a perspective view of a smokeless cigarette lighter showing an optional puff-indicator light.

FIG. 3 is a cross-sectional view of the smokeless cigarette lighter of FIG. 1.

FIG. 4 is a cross-sectional view taken along the line 4-4 of FIG. 3.

FIG. 5 is a schematic view of a suitable electronic circuit for the smokeless cigarette lighter.

DETAILED DESCRIPTION

Turning now to FIG. 1, a lighter 20 may have a generally cylindrical external configuration and is designed to function with a conventional smoking article such as a conventional cigarette 22, or a conventional cigar, or a conventional cigarillo, or the like. The conventional cigarette 22 typically includes a rod 24 comprising a rod of tobacco cut filler encased in a paper wrapper. Depending upon the particular cigarette 22, a filter end 26 may also be part of the cigarette. The lighter 20 may also be designed to function with other smoking articles such as a cigar or cigarillo or the like. In that case, however, a range of lighter sizes may be needed to accommodate the various ring sizes of the cigars.

As illustrated, the lighter 20 receives a substantial portion of the length of the smoking article through an opening at one end. The opposite end of the lighter 20 includes a manifold 28 provided with a plurality of generally radially extending channels 30. The manifold 28 allows air to enter the lighter when the smoker puffs on the cigarette 22 by drawing air therethrough.

Optionally, the end of the lighter opposite to the opening for the smoking article may include an indicator light assembly 36 which can light when the smoker draws air through the smoking article. Thus, the indicator light assembly 36 operates analogously to the coal of a conventional cigarette or cigar when air is drawn into it. The indicator light assembly 36 (see FIG. 2) may have a cover 38 to protect the LED, bulb or filament 40. As desired, the cover 38 may be transparent or translucent. Moreover, the cover 38 may have

pigmentation such as orange or another color to simulate the color of a burning coal. The cover 38 may be constructed from any suitable conventional material including, for example, plastic, glass, transparent minerals, and the like.

5 Within the lighter 20 a heating assembly 50 is provided. The heating assembly 50 defines a chamber 52 which is generally cylindrical with a generally circular cross section. This heater is not limited to that shape and includes other shapes such as frustoconical and other cross sections such as polygonal, elliptical,
10 and the like. Whichever shape may be selected, the chamber 52 has a transverse dimension selected to accommodate the transverse dimension of a smoking article to be used with the lighter. In addition, the length of the chamber 52 is selected to accommodate the length of the associated smoking article such that a mouth engageable portion, i.e.,
15 about 0.5 to about 2 inches, extends from the lighter 20.

One end of the chamber 52 has an opening 54 sized to accommodate a smoking article. For example, where a cigarette is the smoking article, the opening 54 may have a transverse dimension in the range of about 8mm to about 10mm (about 0.3 to about 0.4 inches). Where the
20 smoking article is a cigar, the transverse dimension may range from about 10 mm to about 25 mm (about 0.4 to about 1.0 inches).

The other end of the chamber 52 also has an opening 56. This opening 56 communicates with the manifold 28 and receives air that is drawn through the lighter 20 during smoking. The air opening 56 can
25 be sized as desired. In appropriate circumstances, the air opening 56 may define an orifice of reduced transverse dimension. In other circumstances, the air opening 56 is sufficiently large that no airflow restriction or pressure drop is caused thereby.

The air opening 56 has fluid communication with a central bore 58
30 of the manifold 28. The central bore 58 has fluid communication with each of the channels 30 (see FIG. 4) which extend radially outwardly through the manifold 28. While four channels 30 are illustrated, it should be understood that the number of channels can be selected as desired to give the appropriate airflow into the lighter. For
35 example, there may be as few as two to as many as sixteen channels. The channels 30 may be equiangularly spaced around the axis of the

manifold 28 and may be arranged in one radial plane or in two or more axially-spaced, radial planes.

The central bore 58 preferably has a transverse dimension selected so that it does not restrict airflow through the lighter 20. For example, the bore 58 may have a transverse dimension or diameter as large as the transverse dimension of the air opening 56 of the heating assembly. To avoid restricting airflow into the lighter, the central bore 58 preferably has a cross-sectional area at least as large as the sum of cross-sectional areas of the channels 30 which communicate with the bore 58.

The heating assembly 50 may include a generally cylindrical element 60 having a substantially uniform wall thickness and having a generally circular cross section. The element 60 may be fabricated from a suitable conventional material including, for example, a ceramic material, a thermally insulating material, or a thermally conductive material. The element 60 may have one or more surface-mounted resistance heating members such as films, or shaped ribbons. Alternatively, the element 60 may include one or more internal heating members. Regardless of the type of heating members used, the heating members are arranged in and/or on the heating element 60 so that a substantially uniform temperature can be obtained and maintained in the chamber 52 in both the radial and axial directions.

The heating assembly 50 is operable to raise the temperature in the chamber 52 to preselected temperature or range, preferably in the range of about 160°C to about 200°C within a short time period, for example less than about 30 seconds, preferably less than about 20 seconds, and most preferably about 10 seconds or less. Further, the heating assembly 50 is operable to maintain the temperature in the chamber 52 within the range of about 160°C to about 200°C. The lower temperature of this range, i.e., about 160°, constitutes the threshold for release of volatiles from tobacco which provide the experience of smoking. The higher temperature of this range, i.e., about 200°, defines a heating temperature below which visible smoke does not occur around the lighter. Moreover, at and below this higher temperature, the lighter operates without combustion of tobacco and/or paper cigarette wrapper material. Coincidentally, most of the pyrolytic and

pyrosynthetic processes are avoided that otherwise occur when a conventional cigarette is smoked in a conventional manner.

A jacket 62 is disposed on the outside of the heating assembly 50 both to provide a means of holding the lighter 20 and to insulate the smoker's hand and fingers from the heating assembly 50. To that end, the jacket 62 is fashioned from an insulating material such as, for example, ceramic, phenolic, wood, or the like. The jacket 62 has a thickness selected such that the temperature of its external surface does not exceed about 40°C. To further protect the smoker's fingers from accidental burns, the jacket 62 may be substantially coaxial with the heating element 60 and preferably has a similar cross-sectional shape. For the same reason, the jacket 62 preferably has a length which exceeds the length of the heating element 60 so that the jacket can also substantially cover the end of the heating element 60 at the opening 54. When the jacket 62 covers the end of the heating element 60 and extends toward the opening 54, the jacket is shaped so that it provides an opening for the smoking article which is at least as large as the opening 54.

If desired, the jacket 62 may be designed with a tolerance that permits the heating element 60 to slide axially for replacement purposes.

The manifold 28 attached to the jacket 62 and provides a radially extending surface 64 which provides an abutment to hold the heating element 60 in position within the jacket 62. As shown, the surface 64 extends radially across the end of the heating element 60; however, to provide the positioning function, that surface 64 need only overlap a portion of the end of the heating element. The manifold 28 may be attached to the jacket 62 in any of a variety of ways depending on the materials used for the jacket and the manifold. For example, the connection may be with a permanent adhesive, welding, brazing, interference, or a mechanical arrangement. Where the heating element 60 is designed to be replaceable, the connection may be a mechanical one such as mating threads on the jacket and the manifold 28.

If desired, the remote end of the lighter 20 may include a glow light assembly 36. The glow light assembly is operable to sense airflow in the lighter 20 in a suitable conventional manner so that the light 40 comes on when air is passing through the lighter 20, such

as when the smokeable object is puffed. When the glow light assembly is not part of the lighter, a simple cap may be substituted having a similar shape and being operable to contain the battery 70. The glow light assembly, or the cap, is removably connected to the manifold 28 so that the battery 70 can be accessed and replaced if needed.

The battery 70 is provided to energize the lighter 20. The battery 70 may be disposed in a conformingly shaped cavity located between the manifold 28 and the light assembly 36. The battery 70 not only supplies energy to the heating element 60, it also supplies energy for the glow light assembly. The battery 70 may have any desired design. For example, the battery 70 may be disposable or rechargeable; however it must be capable of delivering electrical energy to the heating element 60 for a plurality of periods of smoking.

The lighter 20 also includes a comparatively simple control system for regulating delivery of electrical energy to the heating element 60. The control system also operates to control the temperature in the heating chamber 52 to the range specified above. The control system also functions to energize the glow light assembly when that is part of the lighter 20.

While various designs for a control system will be apparent to those skilled in the art, one simple control system is shown in FIG. 5. The battery 70 may be connected in series with a first actuator 80, a timer circuit 82, and the heating element 60. The first actuator 80 may be operated by insertion of a cigarette into the heating chamber of the lighter, such as a switch, or a suitable conventional sensor to detect the presence of a smoking article, or a suitable conventional pressure sensor to indicate when the smoker draws upon a smoking article that has been inserted into the lighter. Regardless of the actuator type used, the actuator 80 is operable to connect the battery 70 with the timer circuit 82. When the circuit is energized, the timing circuit begins and continues to permit electrical energy to reach the heating element 60 for a predetermined time, such as a period in the range of about 10 to about 12 minutes. During that time, the heating element 60 rapidly reaches its operating condition and heats the chamber to a temperature in the range of about 160°C to about 200°C. A temperature control 84 is provided to both

sense the temperature in the heating chamber and to regulate that temperature. This control aspect can be effected by, for example, adjusting the electrical energy passing through the heating element 60.

5 The optional puff-indicator assembly includes the light 40 and a puff sensor circuit 88. These elements may be connected in series and those elements then connected in parallel with the heating element 60. The puff sensor circuit is operable to determine when airflow through the heating chamber begins and/or increases. When that happens, the
10 light 40 is energized; conversely, when airflow drops or stops, the light 40 is extinguished. Thus, the light 40 simulates the operation of the coal on a burning cigarette when the cigarette is being puffed.

At the end of the timer cycle, energy to the puff sensor circuit 88 and to the heating element 60 stops. As a result, further puffing
15 by the smoker will not be accompanied by lighting of the light 40 and the smoker will know that the operating cycle has ended. Also, since energy to the heating element 60 stops, further heating of the chamber ends at the same time.

For those situations where the smoker wants to continue puffing
20 the smokeable object, a manually operable switch 86 is provided on the lighter 20. As seen in FIG. 1, the switch 86 may be located adjacent to the end of the lighter and near the protruding portion of the smokeable object. If the switch 86 is engaged, the timer circuit again becomes energized and operates as discussed above.

25 Various other arrangements for controlling the heating element 60 are possible and are within the scope of this disclosure.

In use, a smoking article such as a cigarette 24 (FIG. 3) is inserted into the open end 54 of the lighter 20. As an alternative, a disposable or permanent flavor cartridge 90 may be inserted into the
30 lighter 20 prior to insertion of the cigarette. The flavor cartridge 90 permits customization of the tobacco flavors by the smoker. Yet another alternative involves using both a flavor cartridge 90 and a smoking article 24. When the flavor cartridge, or the smoking article, or both are introduced into the heating chamber, the
35 actuating switch 80 (FIG. 5) of the lighter 20 is closed. As a result, the battery 70 energizes or initiates the timer 82 and the heating element 60.

The battery 70 is preferably sized to have an electrical capacity sufficient to operate the lighter 20 through multiple cycles. Recognizing that frequent replacement or recharging of the battery 70 could annoy a smoker, the battery 70 is most preferably capable of operating the lighter 20 for about a week for an average smoker. That could be, for example, through 100 to 150 cycles or more before replacement or recharge becomes needed. As a minimum, the battery should be able to operate the lighter 20 for at least a day, for example through about 20 cycles or more before replacement or recharge is needed.

The battery 70 is also selected so that, when the timer 82 is initiated, the temperature of the heating chamber 52 (FIG. 3) rises to the preselected temperature or temperature range, preferably in the range of about 160°C to about 200°C in a time period of about 10 seconds. At this time the heat in the chamber 52 acts on tobacco in the smoking article and on the flavor cartridge, if present, to begin releasing volatile vapors from the tobacco or tobacco flavor extract cartridge. The temperature of about 160°C is preferred since, below that temperature, volatile vapors may not be released. The temperature of about 200°C is also preferred since higher temperatures may give rise to visible smoke. By keeping the temperature in the chamber 52 below this value, visible smoke is essentially avoided. The temperatures defining the range end points allow for some variation due to operation of the temperature control, introduction of cooler air during puffing, responsiveness of the temperature control to ambient temperature changes, and similar factors. Generally speaking, these end point temperatures can be evaluated as time averages over the period of time that the timer 82 energizes the heater element 60.

The timer circuit 82 (FIG. 5) preferably energizes the heater element for a predetermined time period, preferably in the range of 10 to 12 minutes. This length of time will accommodate most individuals who use cigarettes as the smoking article. The time period is selected to be longer than the length of time the typical smoking article to be smoked with the lighter would burn if used in the conventional way of lighting the smoking article and smoking it in the conventional manner. Where the smoking article is a cigarette, the

time period of 10 to 12 minutes substantially exceeds the time frame of 3 to 5 minutes typically involved in smoking a cigarette. The time period of 10 to 12 minutes also exceeds the time during which a lighted, but unsmoked, cigarette burns. Where, however, the smoking
5 article is a cigar, the period of operation established by the timer may be adjusted to be significantly longer than the 10 to 12 minute period. Again, the time period would be selected to be greater than the length of time normally associated with smoking a cigar in the conventional, lighted way. With cigars, the expected duty cycles for
10 the battery 70 may also be different since fewer cigars than cigarettes may be consumed by smokers on a daily or weekly basis.

When the timer circuit reaches the end of the time period, energy flow from the battery 70 to the heating element 60 is interrupted and the heating chamber 52 is no longer heated. At that time, the smoking
15 article may be withdrawn from the lighter 20 and discarded. If, however, the smoker wants to continue smoking the smoking article, a manually operable switch 86, located for example on the outside of the jacket 62 near the open end 54 of the heating chamber 52, can be actuated. When the switch 86 is activated energy again flows through
20 the timer circuit, heating element, and temperature control, so that the smoker can continue smoking the object.

When smoking a cigarette in the normal way, each time the smoker takes a puff the coal at the end of the cigarette glows at least in part as a result of the increased oxygen from airflow through the
25 burning end. That glowing coal provides an indicia that the cigarette is lit and being smoked. If desired, the lighter can provide increased power to the indicator 40 to simulate the smoking experience.

The indicator can remain on during the time the heater is
30 maintained at the desired temperature or the indicator can be turned off between puffs. For example, where the puff sensor 88 and the puff-indicator 40 are used, however, the smoker of the smokeless lighter will get a visual indication when puffing occurs. For example, the puff sensor 88 senses airflow into the internal end 56 of
35 the heating chamber 52 (FIG. 3). The airflow sensor may be positioned in one of the channels 30, or the central manifold 58, as desired. Normally there is very little airflow through those channels and

manifold since there is no need for oxygen to support combustion of tobacco at the end of the cigarette. But, when the smoker puffs or draws air through the smoking article in the lighter 20, the puff sensor 88 (FIG. 5) allows electrical energy to light the indicator 40 causing it to glow. When the airflow returns to its normal value, the puff sensor 88 interrupts electrical energy to the indicator and the indicator 40 no longer glows. Accordingly, the optional puff-indicator indicates when the smoker is puffing or drawing air through the lighter.

During the time when air is drawn into the lighter, i.e., puffing, the air condenses the volatile and semi-volatile vapors of the tobacco and the flavor extracts of the flavor cartridge, when used, into an aerosol that is then drawn out of the end of the smoking article protruding from the lighter 20. That distillation aerosol looks like smoke but does not include the particulate matter, ash, pyrolytic and pyrosynthetic compounds found in conventional tobacco smoke.

As an alternate arrangement, the predetermined time interval for operation of the lighter could be set to a shorter value such as, for example the time typically involved in smoking a cigarette. That arrangement could be desirable as a way to increase battery life or longevity. In such a situation, the puff sensor 88 could be used to restart the preselected time interval when a puff by the smoker is sensed. In this way, the preselected time interval could be as short as the typical length of time between puffs for a smoker who smokes a cigarette slowly, but the lighter would keep the heating element energized so that there would not be any interruption in the smoking experience.

While the lighter 20 discussed above can be offered as a stand-alone item, it may also be offered as a component of a kit or smoking system. For example, the kit could include at least one, perhaps more, smokable articles as well as the lighter and a replaceable power supply.

The lighter 20 can smoke conventional cigarettes. No specially manufactured cigarette or tobacco product is required. Thus, the cost to the smoker for this smoking system is thus reduced compared to other approaches where special cigarettes are required. Furthermore,

the components of the lighter 20 are fabricated from inexpensive materials. For example, the electronic components are conventional elements so that the expense associated with sophisticated electronic components is avoided. All these factors contribute to an inexpensive system and an inexpensive lighter assembly.

It will be apparent to those skilled in the art that the system described above allows at least a portion of a cigarette rod to be heated maintained at, or heated to, a preselected temperature for a predetermined time interval. The preselected temperature is maintained without substantial interruption between puffs during that time interval and, in the absence of a puff, for the duration of the predetermined time interval. Presence of a puff during the predetermined time interval can be determined by a puff sensor. In an alternate arrangement, the puff sensor can actuate or restart the time interval to extend the smoking period.

It will be apparent to those skilled in the art that the cigarette being smoked is almost entirely enclosed in the heating chamber 52 and the heating temperature avoids combustion products. As a result, virtually no sidestream smoke is generated during a smoke. Thus, the lighter 20 is a smokeless device.

The tobacco smoked in this lighter is maintained in the specified temperature range continuously. Accordingly, the smoker may take as many puffs, or as few puffs, as desired. Further, the frequency of the puffs is unrestricted and can be any frequency the smoker desires. Furthermore, since the temperature range is low, less battery energy is needed than in systems using higher temperatures.

It will also be apparent to those skilled in the art that the lighter according to this disclosure would require, at most, minimal cleaning. And, when such cleaning is needed, it can be performed very simply. For example, the air channels 30 are externally accessible and can be readily cleaned. The heating chamber 52 is open at one end, and is also externally accessible. To the extent it might be necessary to clean the central channel of the air manifold, that manifold may be removed from the lighter for internal access.

It will now be apparent to those skilled in the art that this specification describes a new, useful, and nonobvious smokeless cigarette lighter and smoking system. It will also be apparent to

those skilled in the art that numerous modifications, variations, substitutes, and equivalents exist for various aspects of the invention that have been described in the detailed description above. Accordingly, it is expressly intended that all such modifications, variations, substitutions, and equivalents that fall within the spirit and scope of the invention, as defined by the appended claims, be embraced thereby.

CLAIMS

1. A lighter comprising:

generally cylindrical heater defining a generally cylindrical
5 chamber, an air supply opening, and an entrance sized to receive at
least an end portion of a smokable article, the heater being operable
to maintain a substantially uniform temperature in the generally
cylindrical chamber, the temperature being below the ignition
temperature of tobacco, and lying in the range of about 160°C to about
10 200°C;

an insulating jacket substantially surrounding the generally
cylindrical heater, having an external surface, being fashioned from a
thermally insulating material, and having a thickness selected such
that the temperature of the external surface remains below 40°C;

15 power supply operable to supply electrical energy to the heater;
and

circuitry operable to control the duration of electrical energy
delivered by the power supply to the heater.

20 2. The lighter of Claim 1 wherein circuitry includes a timing
circuit operable to interrupt delivery of electrical energy to the
heater after a period of about 10 to about 12 minutes.

3. The lighter of Claim 1 further including a puff-indicator
25 operable to sense airflow into the heater and to generate a signal
during periods of increased airflow.

4. The lighter of Claim 2 wherein the circuitry includes a manually
actuatable switch to initiate operation of the heater independently of
30 the timing circuit.

5. The lighter of Claim 1 wherein the circuitry includes a switch
actuated in response to the presence of an object in the generally
cylindrical chamber of the heater.

6. The lighter of Claim 1 further comprising an aerosol generating flavor cartridge in the chamber.

7. A lighter comprising:

5 a heater defining a generally cylindrical chamber, an air supply opening, and an entrance sized to accommodate at least an end portion of a smokable article, the heater being operable to maintain a temperature in the generally cylindrical chamber in the range of 160°C to 200°C;

10 a jacket substantially surrounding the heater, having an external surface, being fashioned from a thermally insulating material, and having a thickness selected such that the temperature of the external surface remains below 40°C;

15 a power supply operable to supply electrical energy to the heater; and

circuitry operable to control the duration of electrical energy delivered by the power supply to the heater to a period of about 10 to about 12 minutes.

20 8. A method of heating at least a portion of a cigarette rod while maintaining it at a preselected temperature for a predetermined time interval.

25 9. The method of Claim 8 wherein the preselected temperature is maintained without interruption between puffs during said time interval or in absence of a puff for said time interval.

10. The method of Claim 8 wherein the preselected temperature is maintained without interruption between puffs.

30 11. The method of Claim 8 further including the step of using a puff sensor to actuate the predetermined time interval.

35 12. A method of delivering mainstream smoke from a cigarette without combustion by maintaining at least a portion of a cigarette rod at a preselected temperature for a predetermined time interval.

13. The method of Claim 12 further including the step of sensing for puffs during the predetermined time interval.

14. The method of Claim 13 further including the step of restarting
5 the preselected time interval when a puff is sensed.