

(19)



(11)

EP 4 573 935 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
25.06.2025 Bulletin 2025/26

(51) International Patent Classification (IPC):
A24D 1/20^(2020.01) A24F 40/42^(2020.01)

(21) Application number: **23217718.8**

(52) Cooperative Patent Classification (CPC):
A24D 1/20; A24F 40/42; A24F 40/20; A24F 40/30

(22) Date of filing: **18.12.2023**

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL
NO PL PT RO RS SE SI SK SM TR**
Designated Extension States:
BA
Designated Validation States:
KH MA MD TN

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(54) **A CONSUMABLE FOR AN AEROSOL GENERATING APPARATUS**

(57) There is provided a heat-not-burn consumable (26) to be used as part of a heat-not-burn aerosol generating apparatus to generate an aerosol that is to be consumed by a user. The consumable (26) has two or

more independent storage portions (30, 34) arranged side-by-side, each of which comprises a respective aerosol-forming precursor formulation (32, 36).

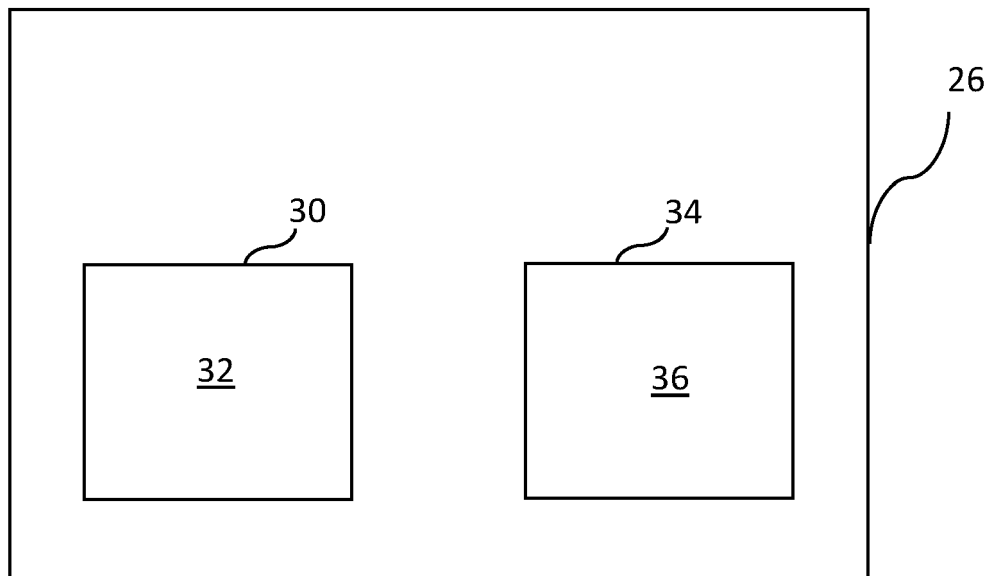


Figure 6

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Description

FIELD

[0001] The present disclosure relates to the field of aerosol generating apparatus, in particular to a consumable of aerosol-forming precursor that is to be used with an aerosol generating apparatus to form an aerosol to be inhaled by a user.

BACKGROUND

[0002] A conventional aerosol generating apparatus typically comprises an aerosol generating unit operable to generate a vapour which condenses to form an aerosol to be inhaled by a user. For example, the aerosol generating unit is typically provided with a heating element that is configured to generate a vapour directly from a precursor by heating the precursor to a target temperature. The precursor is usually housed within a so-called "consumable" (i.e. a unit that includes or consists of the precursor, and which may also be referred to as an "aerosol-generating article" for use with a cooperating aerosol generating unit). In use, the heating element is placed in operative proximity to the precursor.

[0003] A known form of aerosol generating apparatus is a so-called "heat-not-burn" apparatus, wherein the precursor is in the form of a solid, e.g. tobacco, formulation. For such apparatus, it is known for the consumable to have a structure that is akin to a conventional cigarette which is to be removably coupled to the aerosol generating unit, in use. In particular, the consumable typically comprises a tobacco-based formulation that is wrapped in a housing (for example comprising conventional cigarette paper) that defines the outer profile of the consumable. As a result, the consumable typically comprises a single tobacco formulation to be heated.

[0004] In spite of the effort already invested in the development of consumables for aerosol generating apparatus, further improvements are desirable.

SUMMARY

[0005] In general terms, the present disclosure provides a consumable for use in an aerosol generating apparatus to generate an aerosol that is to be consumed by a user, the consumable comprising: a first storage portion comprising a first aerosol-forming precursor formulation; and a second storage portion comprising a second aerosol-forming precursor formulation; wherein the first storage portion and the second storage portion are independent.

[0006] According to a first aspect, the consumable is a heat-not-burn (HNB) consumable for use in a heat-not-burn aerosol generating apparatus. By providing independent storage portions comprising first and second aerosol-forming precursor formulations, the consumable can be designed with greater customisability than those

of the prior art, thereby providing an improved user experience. For example, the first and second precursor formulations can be independently tailored to provide a desired composition to the resulting aerosol, e.g. providing a particular flavour, aroma, or texture. Alternatively, or in combination, the independent storage portions can facilitate targeting heating of the precursor formulations, by heating the storage portions to different temperatures. This may be particularly advantageous in embodiments where different precursor formulations, which are activatable at different temperatures, are present in the two or more storage portions.

[0007] The first precursor formulation may be different to the second precursor formulation.

[0008] The first precursor formulation may have a different combination of active component, carrier and flavouring to that of the second precursor formulation. The first precursor formulation may have a different mixing ratio of active component, carrier and flavouring to that of the second precursor formulation. The first precursor formulation may have a different active component, to that of the second precursor formulation. The active component of the first precursor formulation may have a different format to that of the active component of the second precursor formulation.

[0009] The consumable may further comprise a space (e.g. pre-formed space or bore) adjacent to at least one (e.g. each) of the first storage portion and the second storage portion. The space may be suitable for receiving a heating element of an aerosol generating unit (such that the heating element will be) in operative proximity to the at least one of the first storage portion and the second storage portion.

[0010] In some embodiments, the consumable may have a plurality of spaces, for receiving a respective plurality of heating elements. This may advantageously allow each storage portion to be heated at respective different times or to respective different temperatures. Such an arrangement may be particularly advantageous when configuring each storage portion to comprise different aerosol precursor formulations.

[0011] The consumable may further comprise at least one spacer that separates the first storage portion and the second storage portion (e.g. in a transverse direction of the consumable), such that the space for receiving the heating element is between the first storage portion and the second storage portion. As used herein, the term "spacer" may refer to a solid structure that is positioned between the first and second storage portions to keep the storage portions apart from each other and thereby help maintain the space (gap) between the storage portions for receiving the heating element. Optionally, the consumable may comprise four spacers that separate the first storage portion and the second storage portion.

[0012] In variant embodiments, the consumable may not comprise a spacer. Rather, the space for receiving the heating element may be maintained in another way. For example, the storage portions may be spaced apart by

being glued to transversely opposite portions of a housing. Alternatively, or in combination, the storage portions may be shaped to maintain the space therebetween. Accordingly, at least one (e.g. each) of the first storage portion and the second storage portion may be shaped to include a recessed surface. The recessed surface may be configured to be adjacent to the heating element in use, i.e. with the recessed surface defining an edge of the space.

[0013] At least one (e.g. each) of the first storage portion and the second storage portion may be deformable in a transverse direction of the consumable by an applied force of the heating element. The storage portions can therefore be deformed to define or enlarge the space for receiving the heating element.

[0014] At least one (e.g. each) of the first storage portion and the second storage portion may be penetrable by a heating element. In such embodiments, the consumable may not require a pre-formed space or recess for receiving the heating element. Optionally, each storage portion may be penetrable by a respective heating element, to enable independent heating of each precursor formulation.

[0015] At least one (e.g. each) of the first storage portion and the second storage portion may be in the form of a solid block of precursor formulation. A solid block of precursor formulation can retain its shape across all heating temperatures (e.g. up to 350°C) in use without the need for a barrier to physically separate the formulation in one storage portion from the other storage portion.

[0016] At least one (e.g. each) of the first storage portion and the second storage portion may comprise a compartment formed by a thermally conductive material which at least partly (e.g. entirely) encloses the precursor formulation of the at least one of the first storage portion and the second storage portion. As used herein, the phrase "thermally conductive material" refers to a material that enables heat transfer throughout it (in contrast to thermally insulating materials). This term is intended to encompass materials across a range of (low, medium, or high) thermal conductivities, including e.g. paper, metal, fabric, silicone rubber, or ceramic. Advantageously, such a compartment can help to prevent precursor formulation from reaching the heater, whilst enabling thermally interaction between the heater and the precursor formulation. This can therefore help to improve ease of cleaning of the heater, by preventing precursor material from adhering to the heater. The thermally conductive material may also be referred to herein as a "barrier" or "barrier layer".

[0017] The compartment may be a vapour-permeable pouch that fully encloses (envelops) the precursor formulation. By fully enclosing the precursor formulation, the compartment can further prevent precursor material and/or condensed liquid from the precursor material from reaching the heater, thereby further improving the lifespan of the heater and reducing the need for cleaning.

[0018] The compartment may be substantially tube-

shaped and may enclose the precursor formulation in a longitudinal direction (e.g. only in the longitudinal direction) of the consumable. The precursor formulation may be substantially rod-shaped and may be wrapped by thermally conductive material along its length.

[0019] The thermally conductive material may be non-combustible at temperatures up to and including 350°C.

[0020] According to another aspect of the invention, the first storage portion and the second storage portion are arranged side-by-side in a transverse direction of the consumable. This may help to provide even heating of both precursor formulations.

[0021] The first storage portion and the second storage portion may be substantially parallel in a longitudinal direction of the consumable. Optionally, the first storage portion and the second storage portion may occupy the same longitudinal extent of the consumable.

[0022] Alternatively, however, the first storage portion and the second storage portion may be stacked longitudinally within the consumable. Thus, the first storage portion may be located upstream of the second storage portion. This may be particularly advantageous to provide different heating profiles to the precursor formulations in each storage portion, e.g. if the downstream storage portion does not require as much heat as the upstream storage portion.

[0023] At least one (e.g. each) of the first storage portion and the second storage portion may be shaped to include a longitudinal bore through the storage portion in question. The bore may define the space for receiving the heating element.

[0024] The total number of storage portions within the consumable may be two.

[0025] Alternatively, the consumable may comprise three or more storage portions. Each storage portion may comprise any of the features discussed above in relation to the first and second storage portions.

[0026] The consumable may further comprise a third independent storage portion. The total number of storage portions may be three. The (three) storage portions may be substantially parallel in a longitudinal direction of the consumable and may optionally be further arranged in a substantially triangular array in a transverse plane of the consumable.

[0027] The space for receiving a heating element of an aerosol generating may be at the centre of the triangular array, so that the heating element will be in operative proximity to the first storage portion, the second storage portion and the third storage portion when it is received in the space.

[0028] The number and configuration of the storage portions may be selected based on the desired type of precursor formulations and/or the desired heater configuration. For example, two storage portions arranged side-by-side in a transverse direction may be particularly advantageous for use with a flat blade heating element, whereas three storage portions arranged side-by-side in a triangular array may be particularly advantageous for

use with a rod-shaped (circular) heating element.

[0029] In some embodiments, the consumable may comprise more than three storage portions. However, as the number of storage portions increases, the operation of the consumable may become more complex. Therefore, two or three storage portions may provide the optimum balance of improved customisability whilst minimising the complexity of operation.

[0030] According to another aspect, there is provided an aerosol generating apparatus comprising: a consumable as described according to any preceding statement. The apparatus may further comprise an aerosol generating unit configured to heat the first storage portion and the second storage portion. The aerosol generating apparatus may be a heat-not-burn apparatus.

[0031] The aerosol generating unit may comprise at least one heating element that is configured to be removably inserted within the consumable in operative proximity to at least one of the first aerosol-forming precursor formulation and the second aerosol-forming precursor formulation.

[0032] At least one (e.g. each) of the first storage portion and the second storage portion may comprise a compartment formed by a thermally conductive material which at least partly (e.g. entirely) encloses the precursor formulation of the at least one of the first storage portion and the second storage portion. The thermally conductive material may form a barrier between the at least one (e.g. each) of the first storage portion and the second storage portion and the at least one heating element.

[0033] The aerosol generating unit may be configured to heat the first storage portion and the second storage portion independently.

[0034] The technology described herein further extends to a method of generating an aerosol. Thus, according to another aspect, there is provided a method of generating an aerosol for inhalation by a user, comprising: providing an aerosol generating apparatus substantially as described above according to any preceding statement; and using the aerosol generating unit to heat the first aerosol-forming precursor formulation and the second aerosol-forming precursor formulation.

[0035] The preceding summary is provided for purposes of summarizing some embodiments to provide a basic understanding of aspects of the subject matter described herein. Accordingly, the above-described features are merely examples and should not be construed to narrow the scope or spirit of the subject matter described herein in anyway. Moreover, the above and/or proceeding embodiments may be combined in any suitable combination to provide further embodiments. Other features, aspects, and advantages of the subject matter described herein will become apparent from the following Detailed Description, Figures, and Claims.

BRIEF DESCRIPTION OF THE FIGURES

[0036] Aspects, features and advantages of embodiments of the present disclosure will become apparent from the following description of embodiments in reference to the appended drawings in which like numerals denote like features.

Figure 1 is a block system diagram showing embodiment componentry of an aerosol generating apparatus.

Figure 2 is a block system diagram showing example componentry of the apparatus of Figure 1.

Figure 3 is a schematic diagram showing an example of the apparatus of Figure 2.

Figure 4 is a block system diagram showing example componentry of the apparatus of Figure 1.

Figure 5 is a schematic diagram showing an implementation of the apparatus of Figure 4.

Figure 6 is a schematic diagram showing a consumable for use with an aerosol generating apparatus, in accordance with the technology described herein.

Figure 7 is a schematic diagram showing the consumable of Figure 6 in accordance with an embodiment of the technology described herein.

Figure 8 is a schematic diagram showing the consumable of Figure 6 in accordance with an embodiment of the technology described herein.

Figure 9 is a schematic diagram showing the consumable of Figure 6 in accordance with an embodiment of the technology described herein.

Figure 10 is a schematic illustration of a consumable in accordance with an embodiment of the technology described herein.

Figure 11 is a schematic diagram showing the consumable of Figure 6 in accordance with an embodiment of the technology described herein.

Figure 12 schematically illustrates a storage portion that can be used in the consumable of Figure 11 in accordance with an embodiment of the technology described herein.

DETAILED DESCRIPTION OF EMBODIMENTS

[0037] Before describing several embodiments of aerosol generating system and/or apparatus, it is to be understood that the system is not limited to the details of

construction or process steps set forth in the following description. It will be apparent to those skilled in the art having the benefit of the present disclosure that the system and/or apparatus is capable of other embodiments and of being practiced or being carried out in various ways.

[0038] Unless otherwise defined herein, scientific and technical terms used in connection with the presently disclosed inventive concept(s) shall have the meanings that are commonly understood by those of ordinary skill in the art. Further, unless otherwise required by context, singular terms shall include pluralities and plural terms shall include the singular

All patents, published patent applications, and non-patent publications mentioned in the specification are indicative of the level of skill of those skilled in the art to which this presently disclosed inventive concept(s) pertains. All patents, published patent applications, and non-patent publications referenced in any portion of this application are herein expressly incorporated by reference in their entirety to the same extent as if each individual patent or publication was specifically and individually indicated to be incorporated by reference.

[0039] All of the compositions, assemblies, systems, kits, apparatus and/or methods disclosed herein can be made and executed without undue experimentation in light of the present disclosure. While the compositions, assemblies, systems, kits, apparatus and methods of the inventive concept(s) have been described in terms of particular embodiments, it will be apparent to those of skill in the art that variations may be applied to the compositions and/or methods and in the steps or in the sequence of steps of the methods described herein without departing from the concept, spirit, and scope of the inventive concept(s). All such similar substitutions and modifications apparent to those skilled in the art are deemed to be within the spirit, scope, and concept of the inventive concept(s) as defined by the appended claims.

[0040] As utilized in accordance with the present disclosure, the following terms, unless otherwise indicated, shall be understood to have the following meanings: In the claims, any reference signs placed between parentheses shall not be construed as limiting the claim. The word 'comprising' does not exclude the presence of other elements or steps than those listed in a claim.

[0041] The use of the term "a" or "an" in the claims and/or the specification may mean "one," but it is also consistent with the meaning of "one or more," "at least one," and "one or more than one." As such, the terms "a," "an," and "the" include plural referents unless the context clearly indicates otherwise. Thus, for example, reference to "a compound" may refer to one or more compounds, two or more compounds, three or more compounds, four or more compounds, or greater numbers of compounds. The term "plurality" refers to "two or more."

[0042] The use of the term "at least one" will be understood to include one as well as any quantity more than

one, including but not limited to, 2, 3, 4, 5, 10, 15, 20, 30, 40, 50, 100, etc. The term "at least one" may extend up to 100 or 1000 or more, depending on the term to which it is attached; in addition, the quantities of 100/1000 are not to be considered limiting, as higher limits may also produce satisfactory results. In addition, the use of the term "at least one of X, Y, and Z" will be understood to include X alone, Y alone, and Z alone, as well as any combination of X, Y, and Z. The use of ordinal number terminology (i.e., "first," "second," "third," "fourth," etc.) is solely for the purpose of differentiating between two or more items and is not meant to imply any sequence or order or importance to one item over another or any order of addition, for example.

[0043] Also, the use of introductory phrases such as "at least one" and "one or more" in the claims should not be construed to imply that the introduction of another claim element by the indefinite articles "a" or "an" limits any particular claim containing such introduced claim element to inventions containing only one such element, even when the same claim includes the introductory phrases "one or more" or "at least one" and indefinite articles such as "a" or "an." The same holds true for the use of definite articles. Unless stated otherwise, terms such as "first" and "second" are used to arbitrarily distinguish between the elements such terms describe. Thus, these terms are not necessarily intended to indicate temporal or other prioritization of such elements. The mere fact that certain measures are recited in mutually different claims does not indicate that a combination of these measures cannot be used to advantage.

[0044] The use of the term "or" in the claims is used to mean an inclusive "and/or" unless explicitly indicated to refer to alternatives only or unless the alternatives are mutually exclusive. For example, a condition "A or B" is satisfied by any of the following: A is true (or present) and B is false (or not present), A is false (or not present) and B is true (or present), and both A and B are true (or present).

[0045] As may be used herein, any reference to "one embodiment," "an embodiment," "some embodiments," "one example," "for example," or "an example" means that a particular element, feature, structure, or characteristic described in connection with the embodiment is included in at least one embodiment. The appearance of the phrase "in some embodiments" or "one example" in various places in the specification is not necessarily all referring to the same embodiment, for example. Further, all references to one or more embodiments or examples are to be construed as non-limiting to the claims.

[0046] Throughout this application, the term "about" is used to indicate that a value includes the inherent variation of error for a composition/apparatus/ device, the method being employed to determine the value, or the variation that exists among the study subjects. For example, but not by way of limitation, when the term "about" is utilized, the designated value may vary by plus or minus twenty percent, or fifteen percent, or twelve percent, or eleven percent, or ten percent, or nine percent, or

eight percent, or seven percent, or six percent, or five percent, or four percent, or three percent, or two percent, or one percent from the specified value, as such variations are appropriate to perform the disclosed methods and as understood by persons having ordinary skill in the art.

[0047] As used in this specification and claim(s), the words "comprising" (and any form of comprising, such as "comprise" and "comprises"), "having" (and any form of having, such as "have" and "has"), "including" (and any form of including, such as "includes" and "include"), or "containing" (and any form of containing, such as "contains" and "contain") are inclusive or open-ended and do not exclude additional, unrecited elements or method steps.

[0048] As used in this specification, any formulation used of the style "at least one of A, B or C", and the formulation "at least one of A, B and C" means that those formulations comprise any and all joint and several permutations of A, B, C, that is, A alone, B alone, C alone, A and B in any order, A and C in any order, B and C in any order and A, B, C in any order. There may be more or less than three features used in such formulations.

[0049] The term "or combinations thereof" As may be used herein refers to all permutations and combinations of the listed items preceding the term. For example, "A, B, C, or combinations thereof" is intended to include at least one of: A, B, C, AB, AC, BC, or ABC, and if order is important in a particular context, also BA, CA, CB, CBA, BCA, ACB, BAC, or CAB. Continuing with this example, expressly included are combinations that contain repeats of one or more item or term, such as BB, AAA, AAB, BBC, AAABCCCC, CBBAAA, CABABB, and so forth. The skilled artisan will understand that typically there is no limit on the number of items or terms in any combination, unless otherwise apparent from the context.

[0050] As may be used herein, the term "substantially" means that the subsequently described event or circumstance completely occurs or that the subsequently described event or circumstance occurs to a great extent or degree. For example, when associated with a particular event or circumstance, the term "substantially" means that the subsequently described event or circumstance occurs at least 80% of the time, or at least 85% of the time, or at least 90% of the time, or at least 95% of the time. For example, the term "substantially adjacent" may mean that two items are 100% adjacent to one another, or that the two items are within close proximity to one another but not 100% adjacent to one another, or that a portion of one of the two items is not 100% adjacent to the other item but is within close proximity to the other item.

[0051] The present disclosure may be better understood in view of the following explanations, wherein the terms used that are separated by "or" may be used interchangeably:

As may be used herein, the term **"aerosol generating apparatus"** or **"aerosol delivery apparatus"** or **"apparatus"** or **"electronic (e)-cigarette"** may include appa-

ratus to deliver an aerosol to a user for inhalation. The apparatus may also be referred to as a "smoking substitute apparatus", which refers to apparatus used instead of a conventional combustible smoking article.

5 As may be used herein a "smoking article" may refer to a cigarette, cigar, pipe or other article, that produces smoke (an aerosol comprising solid particulates and gas) via heating above the thermal decomposition temperature (typically by combustion and/or pyrolysis). The
10 apparatus may include an aerosol generating unit that may generate a vapour that may subsequently condense into the aerosol before delivery to an outlet, which may be arranged as a mouthpiece. The apparatus may be configured to deliver an aerosol for inhalation, which may
15 comprise an aerosol with particle sizes of 0.2 - 7 microns, or less than 10 microns, or less than 7 microns. This particle size may be achieved by control of one or more of: heater temperature; cooling rate as the vapour condenses to an aerosol; flow properties including turbulence and velocity. The apparatus may be portable. As
20 may be used herein, the term **"Portable"** may refer to the apparatus being for use when held by a user. The apparatus may be adapted to generate a variable amount of aerosol, e.g. by activating the aerosol generating unit for a variable amount of time, (as opposed to a metered dose
25 of aerosol), which can be controlled by a trigger. The trigger may be user activated, such as a vaping button and/or inhalation sensor. The aerosol generating unit may be arranged to vary an amount of aerosol delivered to a user based on the strength/duration of a draw of a
30 user through a flow path of the apparatus (to replicate an effect of smoking a conventional combustible smoking article). [

35 **[0052]** As may be used herein, the term **"aerosol generating system"** or **"aerosol delivery system"** or **"system"** may include the apparatus and optionally other circuitry/componentry associated with the function of the apparatus, e.g. a peripheral device and/or a peripheral component. As may be used herein, the term
40 "peripheral component" may include one or more of a: networked-based computer (e.g. a remote server); cloud-based computer; other server system.

[0053] As may be used herein, the term **"aerosol"** may include a suspension of precursor, including as one or
45 more of: solid particles; liquid droplets; gas. Said suspension may be in a gas including air. Aerosol herein may generally refer to/include a vapour. Aerosol may include one or more components of the precursor.

50 **[0054]** As may be used herein, the term **"aerosol-forming precursor"** or **"precursor"** or **"aerosol-forming substance"** or **"substance"** or **"substrate"** may refer to one or more of a: liquid; solid; gel; loose leaf material; other substance. The precursor may be processable by an aerosol generating unit of the apparatus to form an aerosol as defined herein. The precursor may
55 include one or more of: an active component; a carrier; a flavouring. The active component may include one or more of nicotine; caffeine; a cannabidiol oil. The active

component may be carried by the carrier, which may be a liquid, including propylene glycol and/or glycerine. The term "flavouring" may refer to a component that provides a taste and/or a smell to the user. The flavouring may include one or more of: Ethylvanillin (vanilla); menthol, Isoamyl acetate (banana oil); or other.

[0055] As may be used herein, the term **"electrical circuitry"** or **"electric circuitry"** or **"circuitry"** or **"control circuitry"** may refer to, be part of, or include one or more of the following or other suitable hardware or software components: an Application Specific Integrated Circuit (ASIC); electronic/electrical componentry (which may include combinations of transistors, resistors, capacitors, inductors etc); one or more processors; a non-transitory memory (e.g. implemented by one or more memory devices), that may store one or more software or firmware programs; a combinational logic circuit; inter-connection of the aforesaid. The electrical circuitry may be included entirely on the apparatus, or distributed between the apparatus and/or on one or more peripheral components/peripheral devices in communication with the apparatus, e.g. as part of the system

As may be used herein, the term **"processor"** or **"processing resource"** may refer to one or more units for processing including as an ASIC, microcontroller, FPGA, microprocessor, digital signal processor (DSP) capability, state machine or other suitable component. A processor may be configured to execute a computer program, e.g. as contained in machine readable instructions stored on a non-transitory memory and/or programmable logic. The processor may have various arrangements corresponding to those discussed for the circuitry, e.g. on-board and/ or off board the apparatus as part of the system.

[0056] As may be used herein, the term **"peripheral device"** or **"peripheral electronic device"** or **"electronic user device"** may include electronic components peripheral to the apparatus, e.g. those arranged at the same location as the apparatus. The peripheral electronic device may comprise electronic computer devices including: a smartphone; a PDA; a video game controller; a tablet; a laptop; or other like device.

[0057] As may be used herein, the term **"computer readable medium/media"** or **"data storage"** may include conventional non-transitory memory, for example one or more of: random access memory (RAM); a CD; a hard drive; a solid state drive; a flash drive; a memory card; a DVD; a floppy disk; an optical drive. The memory may have various arrangements corresponding to those discussed for the circuitry /processor.

[0058] As may be used herein, the term **"information carrying medium"** may include one or more arrangements for storage of information on any suitable medium. Examples include: computer readable medium/media or data storage as defined herein; a Radio Frequency Identification (RFID) transponder; codes encoding information, such as optical (e.g. a bar code or QR code) or mechanically read codes (e.g. a configuration of the

absence or presents of cut-outs to encode a bit, through which pins or a reader may be inserted).

[0059] As may be used herein, the term **"communication resources"** or **"communication interface"** may refer to hardware and/or firmware for electronic information transfer. Wireless communication resources may include hardware to transmit and receive signals by radio and may include various protocol implementations e.g. the 802.11 standard described in the Institute of Electronics Engineers (IEEE) and Bluetooth™ from the Bluetooth Special Interest Group of Kirkland Wash. Wired communication resources may include; Universal Serial Bus (USB); High-Definition Multimedia Interface (HDMI) or other protocol implementations. The apparatus may include communication resources for communication with a peripheral device.

[0060] As may be used herein, the term **"network"** or **"computer network"** may refer to a system for electronic information transfer. The network may include one or more networks of any type, which may include: a Public Land Mobile Network (PLMN); a telephone network (e.g. a Public Switched Telephone Network (PSTN) and/or a wireless network); a local area network (LAN); a metropolitan area network (MAN); a wide area network (WAN); an Internet Protocol Multimedia Subsystem (IMS) network; a private network; the Internet; an intranet.

[0061] As may be used herein, the term **"storage portion"** may refer to a portion of the apparatus adapted to store the precursor, it may be implemented as fluid holding reservoir or carrier for solid material depending on the implementation of the precursor as defined above.

[0062] As may be used herein, the term **"flow path"** may refer to a path or enclosed passageway through the apparatus, through which the user may inhale for delivery of the aerosol. The flow path may be arranged to receive aerosol from an aerosol generating unit. When referring to the flow path, upstream and downstream may be defined in respect of a direction of flow in the flow path, e.g. the outlet is downstream of the inlet.

[0063] As may be used herein, the term **"delivery system"** may refer to a system operative to deliver an aerosol to a user. The delivery system may include a mouthpiece/a mouthpiece assembly and the flow path.

[0064] As may be used herein, the term **"flow"** may refer to a flow in the flow path. The flow may include aerosol generated from the precursor. The flow may include air, which may be induced into the flow path via a puff.

[0065] As may be used herein, the term **"inhale"** or **"puff"** or **"draw"** may refer to a user expansion of the lungs and/or oral cavity to create a pressure reduction that induces flow through the flow path.

[0066] As may be used herein, the term **"aerosol generating unit"** may refer to a device to form the aerosol from the precursor. The aerosol generating unit may include a unit to generate a vapour directly from the precursor (e.g. a heater system or other system) or an aerosol directly from the precursor (e.g. an atomiser

including an ultrasonic system, a flow expansion system operative to carry droplets of the precursor in the flow without using electrical energy or other system). A plurality of aerosol generating units to generate a plurality of aerosols (for example, from a plurality of different aerosol precursors) may be present in the apparatus.

[0067] As may be used herein, the term **"heating system"** may refer to an arrangement of one or more heating elements, which are operable to aerosolise the precursor once heated. The heating elements may be electrically resistive to produce heat from electrical current therethrough. The heating elements may be arranged as susceptors to produce heat when penetrated by an alternating magnetic field. The heating system may heat the precursor to below 300 or 350 degrees C, including without combustion.

[0068] As may be used herein, the term **"consumable"** may refer to a unit that includes or consists of the precursor. The consumable may include the aerosol generating unit, e.g. it is arranged as a cartomizer. The consumable may include the mouthpiece. The consumable may include the information carrying medium. With liquid or gel implementations of the precursor, e.g. an E-liquid, the consumable may be referred to as a "capsule" or a "pod" or "E-liquid consumable". The capsule may include the storage portion, e.g. a reservoir, for storage of the precursor. With solid material implementations of the precursor, e.g. tobacco or reconstituted tobacco formulation, the consumable may be referred to as a "stick" or "package" or "heat-not-burn consumable". In heat-not-burn consumable the mouthpiece may be implemented as a filter and the consumable may be arranged to carry the precursor. The consumable may be implemented as a dosage or pre-portioned amount of material, including a loose-leaf product.

[0069] Referring to **Figure 1**, an aerosol generating apparatus 2 includes a power supply 4, for supply of electrical energy. The apparatus 2 includes an aerosol generating unit 6 that is driven by the power supply 4. The power supply 4 may include an electric power supply in the form of a battery and/or an electrical connection to an external power source. The apparatus includes precursor 8, which is aerosolised by the aerosol generating unit 6. The apparatus 2 includes a delivery system 10 for delivery of aerosolised precursor to a user (not shown in Figure 1).

[0070] Electrical circuitry (not illustrated in Figure 1) may be implemented to control the interoperability of the power supply 4 and aerosol generating unit 6.

[0071] In variant embodiments, which are not illustrated, the power supply may be omitted, e.g. an aerosol generating unit implemented as an atomiser with flow expansion may not require a power supply.

[0072] Referring to **Figure 2**, the aerosol generating apparatus 2 is an implementation of the arrangement of Figure 1 and/or other arrangements disclosed herein, typically for generation of an aerosol from a liquid precursor. The delivery system 10 includes a flow path 12

that transmits flow 14 in operative proximity of a heating system 16 of the aerosol generating unit 6. By operative proximity it is meant that the flow is transmitted to carry vaporised and/or aerosolised precursor generated from aerosol generating unit 6 to the outlet of the delivery system 10. The flow path 12 includes an inlet 18, and an outlet 20, which may be arranged as a mouthpiece. The delivery system 10 includes a precursor transmission system 22 to transmit the precursor, typically in liquid form from a reservoir, to the aerosol generating unit 6. The precursor transmission system 22 may be implemented as a wick, injector or other suitable device. In such arrangements, the precursor can be contained in a reservoir (not illustrated in Figure 2) or other storage portion.

[0073] In variant arrangements, which are not illustrated, the precursor transmission system may be implemented by the aerosol generating unit, for example, as a porous heating component.

[0074] Referring to **Figure 3**, which is a specific implementation of the arrangement of Figure 2, a consumable 26 is implemented as a capsule/pod. The capsule 26 is separably connectable to a body 24 that comprises the power supply 4. The capsule 26 includes the precursor 8, the precursor transmission system 22, aerosol generating unit 6 and the mouthpiece 20 forming the outlet. A storage portion, which is implemented as a reservoir (not shown in Figure 3) is arranged to carry the precursor.

[0075] In variant arrangements, which are not illustrated, one or more of the precursor, aerosol generating unit and mouthpiece, are arranged as part of the body, e.g. the mouthpiece is arranged as part of the body and the precursor and aerosol generating unit are arranged as a separable cartomizer.

[0076] Referring to **Figure 4**, the aerosol generating apparatus 2 is an implementation of the arrangement of Figure 1 and/or other arrangements disclosed herein typically for generation of an aerosol from a solid precursor. A heating system 16 of the aerosol generating unit 6 interacts with the precursor 8 to generate vaporised and/or aerosolised precursor. The precursor 8 is typically arranged as a solid and is arranged to receive thermal energy via conductive heat transfer from the aerosol generating unit 6, e.g. a heating element of the heating system 16 is arranged as a rod (not illustrated in Figure 4) which is inserted into the precursor. The delivery system 10 includes a flow path 12 that transmits flow 14 through (or in operative proximity to) the precursor 8 to carry the vapour and/or aerosol to an outlet 20 of the flow path 12.

[0077] Referring to **Figure 5**, which is a specific implementation of the arrangement of Figure 4, a consumable 26 is implemented as a stick. The stick 26 is separably connectable to a body 24 that comprises the power supply 4 and aerosol generating unit 6. To facilitate this, the body 24 may comprise a receptacle (i.e. a cavity), within which a free end of the heating element or rod projects so that it can penetrate the consumable 26 when the consumable 26 is received within the receptacle. The

consumable 26 may be snugly received in the receptacle to facilitate easier insertion and predictable positioning of the heating element in the consumable 26. The consumable 26 includes, proximal the body 24, the precursor 8 (not shown in Figure 5) as a reconstituted tobacco formulation and, distal the body 24, a mouthpiece 20 arranged as a filter.

[0078] Alternatively, the receptacle itself may be formed by a heating element that is shaped to define the cavity within which the consumable is received. In that regard, the cavity may form an oven that is configured to heat the precursor from outside the consumable by conduction through the consumable housing.

[0079] Figure 6 schematically illustrates a consumable 26 according to the technology described herein. The consumable 26 is to be used with an aerosol generating apparatus (not shown), which may be a specific implementation of one of the embodiments of the aerosol generating apparatus described above with respect to Figures 1 to 5, which comprises an aerosol generating unit for heating the consumable 26.

[0080] Within the consumable 26, there is provided two independent storage portions, each of which comprises an aerosol-forming precursor formulation. In particular, the consumable 26 comprises a first portion 30 at which a first aerosol-forming precursor formulation 32 is stored within the consumable 26, and a second portion 34 at which a second aerosol-forming precursor formulation 36 is stored within the consumable 26.

[0081] The storage portions 30, 34 are independent in that the precursor 32 that is stored in the first portion 30 and the precursor 36 that is stored in the second portion 34 occupy discrete (and for example non-contiguous) regions within the consumable 26. Further, the storage portions 30, 34 are independent in that the first and second precursor formulations are discrete and unable to be combined or mixed together within the consumable 26.

[0082] Although not shown in Figure 6, the consumable 26 may comprise a barrier that physically separates the first precursor formulation 32 and the second precursor formulation 36 into discrete storage portions. For example, the independent storage portions may be implemented as separate sub-compartments of the consumable, where each sub-compartment is formed by a barrier of thermally conductive material. As will be described in further detail below, the first and the second precursor formulations 32, 36 may be individually wrapped by a thermally conductive material.

[0083] Where a barrier of thermally conductive material is used to separate the precursor formulations, the thermally conductive material will be hydrophobic and/or non-porous in construction or will otherwise be substantially impermeable to liquid or solid. Further, the material may be non-combustible at typical operating temperatures of the heating element, e.g. up to and including 350°C for typical heat-not-burn devices. Suitable thermally conductive materials include paper, metal (e.g.

foil), fabric, silicone rubber, or ceramics.

[0084] Instead of providing a barrier that physically separates the first precursor formulation 32 and the second precursor formulation 36 into discrete storage portions, the precursor formulations themselves can be implemented as solid blocks of material that retain their shape and therefore can be separated within the consumable. A given precursor formulation can be pre-formed into a solid block using an extrusion process or by compressing a powdered formulation (of, e.g. tobacco granules combined with a binder such as guar gum or vegetable glycerine). In this way, the first and second precursor formulations 32, 36 will be independent within the consumable 26 without having to be physically separated by a barrier (although a barrier could nevertheless also be provided in some embodiments).

[0085] By having independent storage portions, the consumable of the technology described herein facilitates greater control of the aerosol that is to be delivered to the user, as compared to a conventional consumable which comprises a single storage portion.

[0086] Firstly, with independent storage portions, the first and second precursor formulations can be independently tailored (e.g. at manufacture) to more accurately control the composition of the resulting aerosol. For example, the first and second storage portions can be (and in some embodiments are) tailored such that they comprise different types, formats and/or densities of precursor formulation to provide an aerosol having greater depth of flavour, aroma and texture. The first and second precursor formulations 32, 36 may have different combinations (constituent mixing ratios) of active component, carrier, and flavouring. Additionally, or alternatively, where the storage portion(s) comprises a thermally conductive material, that material can be used to impart flavour or to help deliver additional vapour to the airflow through the apparatus and delivered to the user. For example, the thermally conductive material may have been pre-infused with a flavouring, an aromatic substance or a Propylene-Glycol or Vegetable-Glycerine based liquid.

[0087] Secondly, two or more independent storage portions within a consumable facilitates targeted heating of the precursor formulations to control the composition of the resulting aerosol. In particular, where the aerosol generating unit is operable to do so, the independent storage portions could be heated to different temperatures, to control the nature and characteristic features of the resulting aerosol. This may be particularly advantageous in embodiments where different precursor formulations, which will be activated at different temperatures, are present in the two storage portions.

[0088] The remaining description will focus primarily on the provision of two independent storage portions in a heat-not-burn consumable to be used as part of the aerosol generating apparatus described above with respect to Figures 4 and 5. Accordingly, the first and second aerosol forming precursor formulations 32, 36 are solid-

based precursor formulations, e.g. a tobacco type or blend that has been manufactured according to any known process. A suitable format for the tobacco includes reconstituted tobacco, as well as granulated, powder, foam, extract or gel formats.

[0089] Figure 7 schematically illustrates a heat-not-burn consumable in accordance with an embodiment of the technology described herein.

[0090] The consumable 26 includes an outer consumable housing 28, e.g. a paper wrapper, which defines the outer profile of the consumable 26. The outer housing 28 forms part of the flow path of the aerosol generating apparatus described above with respect to Figure 4. The outer housing 28 accordingly has an upstream end 38 and a downstream end 40 which forms an outlet of the flow path. The upstream end 38 of the consumable 26 is configured to be received within a receptacle of the aerosol generating unit so that the consumable 26 can be heated. The downstream end 40 forms a mouthpiece on which the user can suck to draw a flow of air (and, correspondingly, vapour and/or aerosol) through the consumable 26.

[0091] The outer housing 28 has two storage portions, the first storage portion 30 and the second storage portion 34, which comprise the first aerosol-forming precursor formulation (not shown) and the second aerosol forming precursor (not shown), respectively. In this specific implementation, the first and second storage portions 30, 34 are in the form of pouches 42, 44. Each pouch 42, 44 comprises a thermally conductive material that entirely encloses and retains the precursor formulation within the pouch in question, but is permeable to gases to allow the vapour formed by heating the precursor formulation to escape the pouch and enter the flow path of the apparatus. In other embodiments, however, at least one of the first and second storage portions 30, 34 will be implemented as a solid, e.g. extruded, block of precursor formulation

[0092] In the embodiment illustrated, the number of independent storage portions has been specifically selected as two in order to provide an appropriate balance between the advantages of providing greater control of the to-be-generated aerosol and the disadvantages associated with increasing the complexity of the consumable. For example, although the provision of three, four or more portions in a consumable is viable, doing so would inevitably increase the complexity of the consumable and thus its cost to manufacture. Further, increasing the number of independent portions may reduce a designer's ability to control airflow through the consumable. Two independent portions may therefore be an optimal choice in most cases.

[0093] The storage portions 30 and 34 extend substantially parallel to each other and longitudinally between the upstream end 38 and the downstream end 40 of the consumable 26. In the illustrated embodiment of Figure 7, the storage portions 30, 34 extend along some but not all of the length of the housing 28 to allow room at the

downstream end 40 of the consumable 26 for a filter 46, although that is not required. Further, the two storage portions 30, 34 occupy the same length (longitudinal extent) of the housing 28 (and thus also the consumable 26 as a whole) and are arranged side-by-side in the transverse direction of the consumable 26.

[0094] As described above, the first and second precursor formulations can be heated from the outside of the consumable, through the consumable housing 28 by an oven-type receptacle of the aerosol generating unit. However, in this specific implementation, the consumable is configured to be used with a penetrative aerosol generating unit, where at least one heating element penetrates the consumable 26 at the upstream end 38 thereof, in use.

[0095] Each portion 30, 34 may be penetrable by a heating element, so that the heating element can be received within the storage portion in direct contact with the precursor formulation. However, the illustrated consumable 26 is suitable for receiving the heating element in a space 48 adjacent to and between the storage portions 30, 34, where the space 48 is created by one or more (in this embodiment four) spacers 49 that are located between the first storage portion 30 and the second storage portion 34 to separate the two in the transverse direction of the consumable 26.

[0096] The outer profile of the consumable 26 is shaped to conform to the shape of the receptacle (cavity) of the aerosol generating unit (not shown) so that, when the consumable 26 is received inside the receptacle, relative movement between the heating element 28 and the consumable 26 is limited to one degree of freedom. In this way, the heating element 28 can be configured to be inserted into the consumable 26 in a single insertion direction and at a predefined position within the consumable 26. The first portion 30 and the second portion 34 can be correspondingly configured such that the space 48 (or correspondingly the interface) between the two is at the predefined position within the consumable 26 and will extend in a direction that will be aligned with the insertion direction of the heating element, when the consumable 26 is received in the receptacle.

[0097] By receiving the heating element in the space 48 immediately between the two portions, the heating element will be in operative proximity to the precursor formulations, but separated from the precursor formulations by the thermally conductive material. As a result, the thermally conductive material of each storage portion 30, 34 forms a respective barrier between the heating element and the precursor formulation. A barrier may be advantageous in that it will inhibit or prevent precursor residue, moisture or debris from contacting and adhering to the heating element during use, while allowing heat transfer from the heating element to the precursor through the barrier. In this way, the heating element can be kept cleaner, thereby reducing the amount of cleaning required by the user to maintain normal operation of the heating element, preventing a drop in perfor-

mance of the heating element (due to excessive residue) and improving the overall experience for the user. Reducing the frequency with which the heating element is cleaned also reduces the risk of breaking the heating element, because conventional heating elements are known to be brittle and prone to failure when they experience forces that exceed the levels that are typical during normal use.

[0098] Although the space 48 between the first and second portions 30, 34 has been described above as being formed by a spacer within the consumable 26, the space 48 can be formed in any other suitable and desired way. For example, the two portions 30, 34 may be spaced apart by being glued to the housing 28 at transversely opposite positions on the housing 28. In other embodiments, the space 48 is formed upon insertion of the heating element in the consumable 26. For example, the consumable 26 may be pre-formed and manufactured such that the first portion 30 and the second portion 34 are substantially contiguous along the longitudinal direction of the consumable 26, but the first and second portions 30, 34 are deformable away from each other in the transverse direction of the consumable 26, to allow the storage portions 30, 34 to be separated under the applied force of the heating element, as it is inserted into the consumable 26 along the interface between the first portion 30 and the second portion 34.

[0099] It will be appreciated that although the storage portions have been described above as being in the form of solid blocks or pouches (that entirely enclose the precursor formulations), this is not required.

[0100] Figure 8 schematically illustrates a consumable according to an embodiment in which an alternative form of storage portion is used.

[0101] The consumable of Figure 8 is substantially the same as that described with respect to Figure 7 (and for that reason like reference numerals are used to denote like features). For example, the consumable comprises an outer housing 28 having an upstream end 38 and a downstream end 40 (which forms part of the flow path of the apparatus), and first and second storage portions 30, 34 which store the first aerosol-forming precursor formulation 32 and the second aerosol forming precursor 36, respectively. However, the consumable 26 in this specific implementation differs from that of the embodiment of Figure 7 in that the first and second storage portions 30, 34 are implemented as tubes within which the first and second precursor formulations 32, 36 are stored.

[0102] As can be seen in Figure 8, each storage portion 30, 34 comprises a longitudinal wall 50, 52 that is shaped to define a tube that circumnavigates a longitudinal extent (in this embodiment the entire length) of the precursor 32, 36 like a wrap. The longitudinal ends of the tubes 50, 52 are open to allow vapour to escape, but in other embodiments at least the ends of the tubes 50, 52 that are located at the upstream end 38 of the consumable 26 are closed, e.g. by a vapour-permeable membrane or a thermally conductive material, to prevent the precursor

formulation 32, 36 from escaping at the upstream end 38.

[0103] Figure 9 is a transverse cross-sectional view of a consumable that is substantially the same as that described above with respect to Figure 8, except that each storage portion 30, 34 is shaped to comprise a recessed surface 54, 56.

[0104] As can be seen, each storage portion 50, 52 is shaped such that it is substantially C-shaped or U-shaped in transverse cross-section so as to have a re-entrant region and such that a recessed surface is present in a longitudinal direction on a surface of the storage portion. In the specific implementation of Figure 9, each tube comprises a substantially curved, concave surface 54, 56 (although a curved surface is not required) that extends in the longitudinal direction of the consumable 26 (and also the storage portion itself). The recessed surfaces 54, 56 define a channel along which a heating element can be received. In particular, the tubes 50, 52 are oriented such that their concave surfaces 54, 56 face each other to define a substantially cylindrical channel that extends longitudinally through the consumable 26. The channel is located at a central position within the consumable 26 at a predefined position at which the heating element is to be received. In that regard, the channel will be aligned with an insertion direction of the heating element, when the consumable is inserted within the receptacle of the aerosol-generating unit.

[0105] By providing recessed surfaces that cooperate to define a channel for the heating element, it may be possible to maximise the contact area between the heating element and the storage portions, thereby increasing heat transfer to the precursor formulations.

[0106] Although recessed surfaces have been described above with respect to embodiments in which the storage portions are implemented as tubes, it is noted here that any of the storage portions described herein may be shaped to define recessed surfaces in the manner described with respect to Figure 9.

[0107] Further, although the embodiments of Figures 7 to 9 have been described with respect to a consumable comprising two storage portions, a consumable may be manufactured to include any number of plural independent storage portions.

[0108] The number of storage portions may be chosen based on the shape or profile of the heating element that is to be used, to maximise the contact area between the heating element and the storage portions and thus the heat transfer to the precursor formulations. For example, a consumable that comprises only two storage portions may be particularly suitable for use with a heating element that is of a planar structure, e.g. a heating element that has a substantially rectangular shape in transverse cross-section.

[0109] A consumable comprising three or more storage portions, on the other hand, may be particularly suitable for use with a rod-shaped heating element. Figure 10 is a schematic illustration of a consumable in accordance with such an embodiment.

[0110] As can be seen in Figure 10, the consumable 26 is substantially as described above with respect to Figure 7 in that it comprises an outer housing 28 and first and second storage portions 30, 34. However, the consumable 26 in this specific implementation differs from that of the embodiment of Figure 7 in that it comprises a third storage portion 37 comprising a third aerosol forming precursor formulation 39.

[0111] The third storage portion 37 can take any suitable form, such as a pouch or a compartment defined by thermally conductive material. However, in this embodiment the third storage portion 37 is in the form of a solid block of the third precursor formulation 39.

[0112] The first, second and third storage portions 30, 34, 37 are shaped such that they have a substantially circular-shape in cross-section (although other shapes are possible) and extend parallel in the longitudinal direction of the consumable 26. However, the storage portions are arranged in a substantially triangular-shaped array, whereby each storage portion defines an apex of the triangle in a transverse plane of the consumable 26. In this way, there is provided a space 49 (e.g. of trilobal cross-section) at the centre of the triangular array for receiving the heating element in use. Accordingly, such an array may be particularly suitable for a rod-shaped heating element.

[0113] Figure 11 is a schematic illustration of a consumable in accordance with another proposed implementation of the technology described herein.

[0114] The consumable 26 is substantially as described above with respect to Figure 7. For example, the consumable comprises an outer housing 28 having an upstream end 38 and a downstream end 40 (which forms part of the flow path of the apparatus), and first and second storage portions 30, 34 which store the first aerosol-forming precursor formulation 32 and the second aerosol forming precursor 36, respectively. However, the consumable in this specific implementation differs from that of the embodiment of Figure 7 in that the first and second storage portions 30, 34 are stacked longitudinally within housing 28.

[0115] In particular, and as can be seen in Figure 11, the first and second storage portions 30, 34 are implemented as planar block of, e.g. extruded, precursor formulations 32, 36, which are arranged end-to-end at different positions along the longitudinal direction of the consumable. Accordingly, each storage portion 30, 34 occupies a different length (longitudinal extent) of the housing 28. In this implementation, the first storage portion 30 is located at a position that is upstream of the second storage portion 34 in the flow direction, i.e. the second storage portion 34 is located at a position that is further from the upstream end 38 of the consumable 26 than as compared to the distance from the upstream end 38 to the position of the first portion 30.

[0116] As described above, the first and second precursor formulations can be heated from the outside of the consumable, through the consumable housing 28 by an

oven receptacle of an aerosol generating unit, or from the inside of the consumable, by at least one heating element that penetrates the consumable 26 at the upstream end 38 thereof. Accordingly, each portion 30, 34 may be penetrable by a heating element, so that the heating element can be received within the storage portion in direct contact with the precursor formulation.

[0117] The consumable may be particularly suitable for use with an aerosol generating unit that is operable to heat such aligned portions independently. However, in some implementations, the downstream portion 34 may comprise a precursor formulation 36 that is active (i.e. vaporises) at lower temperatures than the precursor formulation 32 in the upstream portion 30, or is active only when vapour generated from the upstream portion 30 passes through the downstream portion 34. Such an arrangement may be particularly suitable for use with an aerosol generating unit that is operable to heat only the upstream portion 30 of the consumable 26.

[0118] Figure 12 schematically illustrates a storage portion that can be used in the consumable 26 of Figure 11 instead of one or more of the planar blocks described above with respect to that Figure. The storage portion of Figure 12 is particularly suitable for cases where the consumable is to be used with a penetrative heat-not-burn device.

[0119] The storage portion 30 is implemented as a solid block of precursor formulation 32 which is shaped to define a substantially ring-shaped or toroidal structure having a central bore 58 that defines a hollow space within which the heating element (not shown) is to be received. The storage portion 30 has an annular shape in transverse cross-section. The storage portion 30 may be snugly received within the outer housing 28 of the consumable 26 in an orientation at which the central bore 58 is at a predefined insertion position of the consumable and is aligned with an insertion direction of the heating element.

[0120] Although the storage portions of Figures 11 and 12 have been described as being implemented as solid blocks of precursor formulation, it is equally possible (and in some cases desirable) for each portion to be implemented as a correspondingly shaped pouch (or other container or compartment) that at least partly (and in some embodiments entirely) encloses the precursor. In such cases, the pouch may comprise a thermally conductive material, which will serve as a barrier between the heating element and the precursor when the heating element is received in the central bore 58.

[0121] In view of all of the above, it can be seen that the technology described herein provides a more sophisticated consumable that allows greater flexibility and control of the nature of the aerosol that is to be generated from the consumable.

[0122] Unless otherwise explicitly stated as incompatible, or the physics or otherwise of the embodiments, example or claims prevent such a combination, the features of the foregoing embodiments and examples, and

of the following claims may be integrated together in any suitable arrangement, especially ones where there is a beneficial effect in doing so. This is not limited to only any specified benefit, and instead may arise from an "ex post facto" benefit. This is to say that the combination of features is not limited by the described forms, particularly the form (e.g. numbering) of the example(s), embodiment(s), or dependency of the claim(s). Moreover, this also applies to the phrase "in one embodiment", "according to an embodiment" and the like, which are merely a stylistic form of wording and are not to be construed as limiting the following features to a separate embodiment to all other instances of the same or similar wording. This is to say, a reference to 'an', 'one' or 'some' embodiment(s) may be a reference to any one or more, and/or all embodiments, or combination(s) thereof, disclosed. Also, similarly, the reference to "the" embodiment may not be limited to the immediately preceding embodiment.

[0123] The foregoing description of one or more implementations provides illustration and description, but is not intended to be exhaustive or to limit the scope of the invention to the precise form disclosed. Modifications and variations are possible in light of the above teachings or may be acquired from practice of various implementations of the present disclosure.

Claims

1. A consumable (26) for use in an aerosol generating apparatus to generate an aerosol that is to be consumed by a user, the consumable (26) comprising:
 - a first storage portion (30) comprising a first aerosol-forming precursor formulation (32); and
 - a second storage portion (34) comprising a second aerosol-forming precursor formulation (36);
 wherein the first storage portion (30) and the second storage portion (34) are independent from one another and are arranged side-by-side in a transverse direction of the consumable; and wherein the consumable (26) is a heat-not-burn consumable (26).
2. A consumable as claimed in claim 1, wherein the first precursor formulation (32) is different to the second precursor formulation (36), optionally wherein the first precursor formulation (32) has a different combination of active component, carrier and flavouring to that of the second precursor formulation (36).
3. A consumable as claimed in any preceding claim, further comprising a space (48) adjacent to at least one of the first storage portion (30) and the second storage portion (34), for receiving a heating element of an aerosol generating unit in operative proximity to the at least one of the first storage portion (30) and the second storage portion (34);
 - optionally wherein the consumable further comprises a spacer (49) that separates the first storage portion (30) and the second storage portion (34), such that the space (48) for receiving the heating element is between the first storage portion (30) and the second storage portion (34).
4. A consumable as claimed in claim 3, wherein at least one of the first storage portion (30) and the second storage portion (34) is shaped to include a recessed surface.
5. A consumable as claimed in any preceding claim, wherein at least one of the first storage portion (30) and the second storage portion (34) is deformable in a transverse direction of the consumable by an applied force of the heating element; and/or wherein at least one of the first storage portion (30) and the second storage portion (34) is penetrable by a heating element.
6. A consumable as claimed in any preceding claim, wherein at least one of the first storage portion (30) and the second storage portion (34) is in the form of a solid block of precursor formulation.
7. A consumable as claimed in any preceding claim, wherein at least one of the first storage portion (30) and the second storage portion (34) comprises a compartment formed by a thermally conductive material which at least partly encloses the precursor formulation of the at least one of the first storage portion (30) and the second storage portion (34), optionally wherein the thermally conductive material is non-combustible at temperatures up to and including 350°C.
8. A consumable as claimed in claim 7, wherein the compartment (42, 44) is a vapour-permeable pouch that fully encloses the precursor formulation (32, 36); or wherein the compartment (50, 52) is substantially tube-shaped and encloses the precursor formulation (32, 36) in a longitudinal direction of the consumable (26).
9. A consumable as claimed in any preceding claim, wherein the first storage portion (30) and the second storage portion (34) are substantially parallel in a longitudinal direction of the consumable (26).
10. A consumable as claimed any preceding claim, wherein the first storage portion (30) and the second storage portion (34) occupy the same longitudinal extent of the consumable (26).
11. A consumable as claimed in any preceding claim, wherein the total number of storage portions within

the consumable is two.

- 12.** A consumable as claimed in any one of claims 1 to 10, further comprising a third independent storage portion; 5

wherein the storage portions are substantially parallel in a longitudinal direction of the consumable (26) and are arranged in a substantially triangular array in a transverse plane of the consumable (26); 10
optionally wherein a centre of the triangular array defines a space for receiving a heating element of an aerosol generating unit (6), so that the heating element will be in operative proximity to the first storage portion (30), the second storage portion (34) and the third storage portion when it is received in the space. 15

- 13.** A heat-not-burn aerosol generating apparatus (2) comprising: 20

a consumable (26) as claimed in any preceding claim; and
an aerosol generating unit (6) configured to heat the first storage portion (30) and the second storage portion (34); 25
optionally wherein the aerosol generating unit (6) comprises at least one heating element that is configured to be removably inserted within the consumable (26) in operative proximity to at least one of the first aerosol-forming precursor formulation (32) and the second aerosol-forming precursor formulation (36); 30
optionally wherein: 35

at least one of the first storage portion (30) and the second storage portion (34) comprises a compartment formed by a thermally conductive material which at least partly encloses the precursor formulation of the at least one of the first storage portion (30) and the second storage portion (34); and 40
the thermally conductive material forms a barrier between the at least one of the first storage portion (30) and the second storage portion (34) and the at least one heating element. 45

- 14.** A heat-not-burn aerosol generating apparatus (2) as claimed in claim 13, wherein the aerosol generating unit (6) is configured to heat the first storage portion (30) and the second storage portion (34) independently. 50 55

- 15.** A method of generating an aerosol for inhalation by a user, comprising;

providing a heat-not-burn aerosol generating apparatus as claimed in claim 13 or 14; and using the aerosol generating unit (6) to heat the first aerosol-forming precursor formulation (32) and the second aerosol-forming precursor formulation (36).

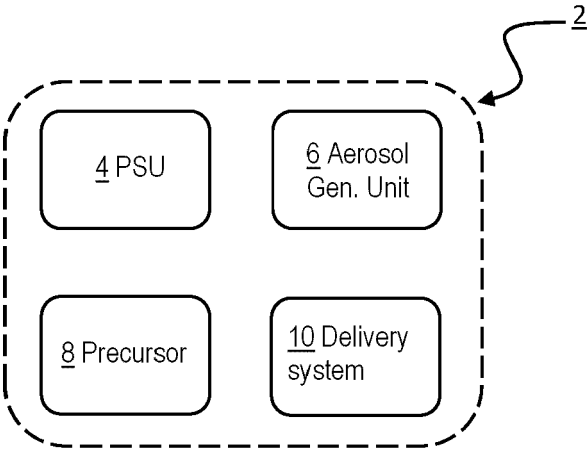


Figure 1

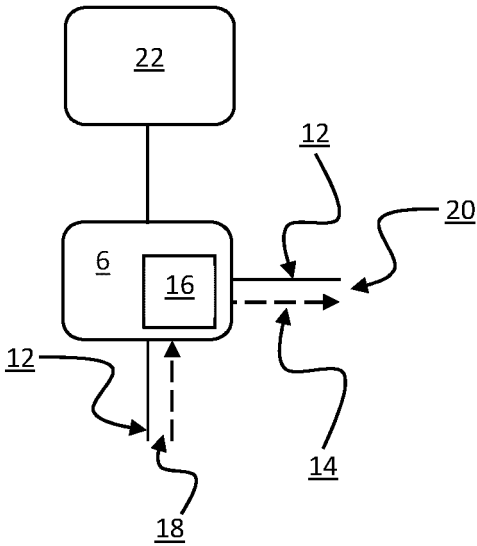


Figure 2

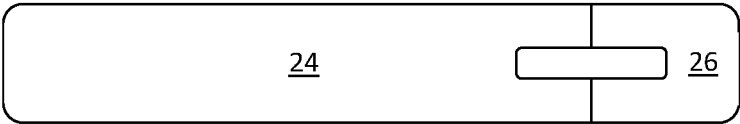


Figure 3

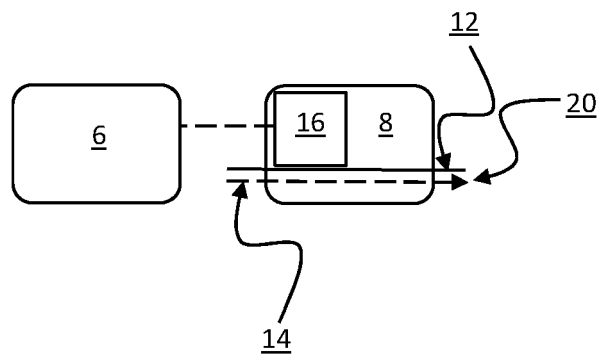


Figure 4

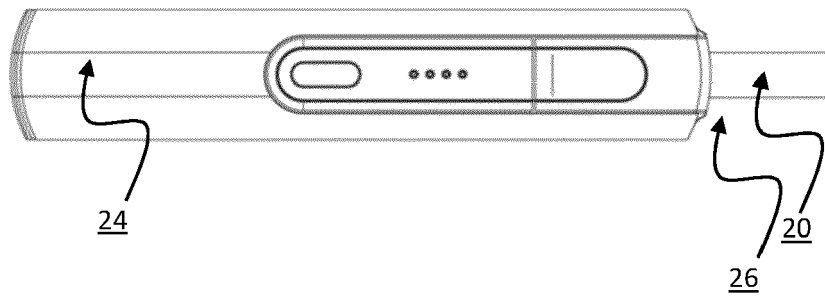


Figure 5

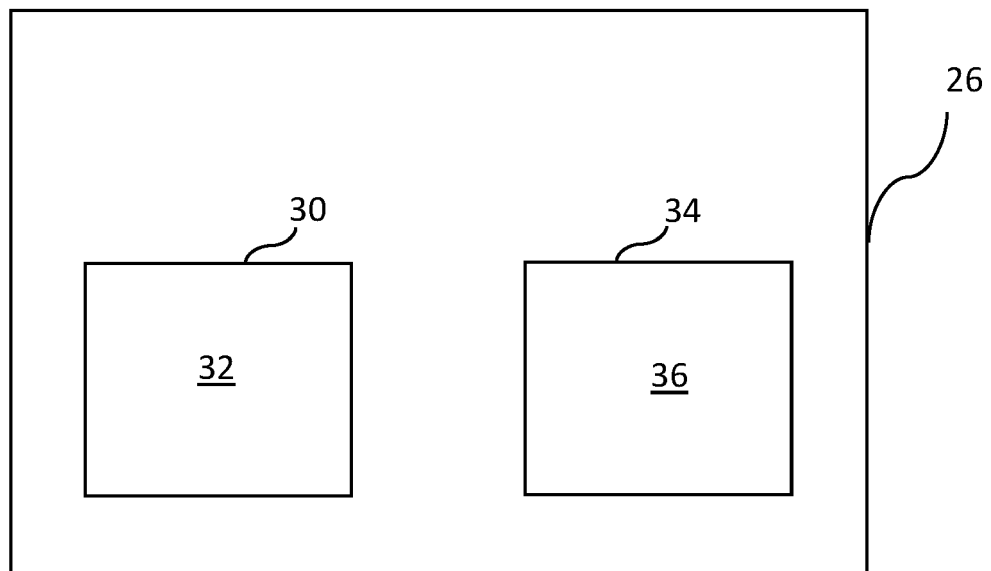


Figure 6

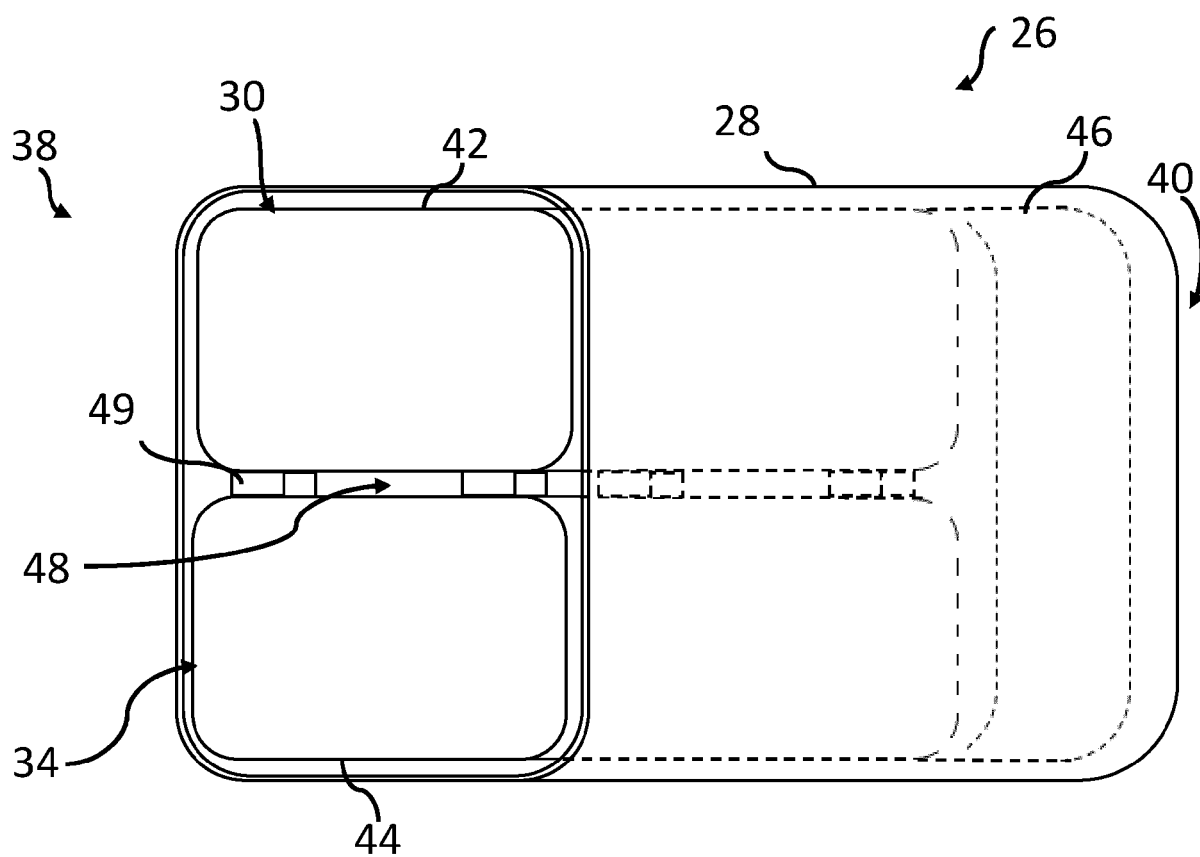


Figure 7

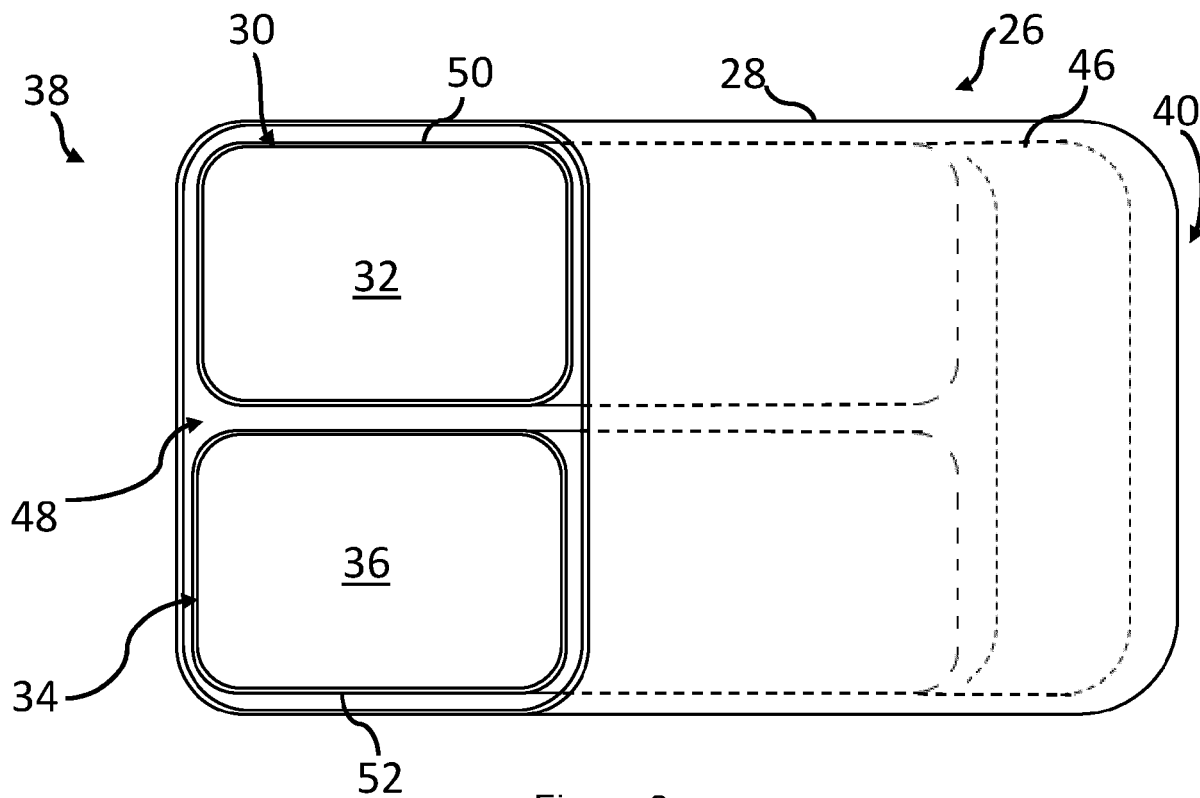


Figure 8

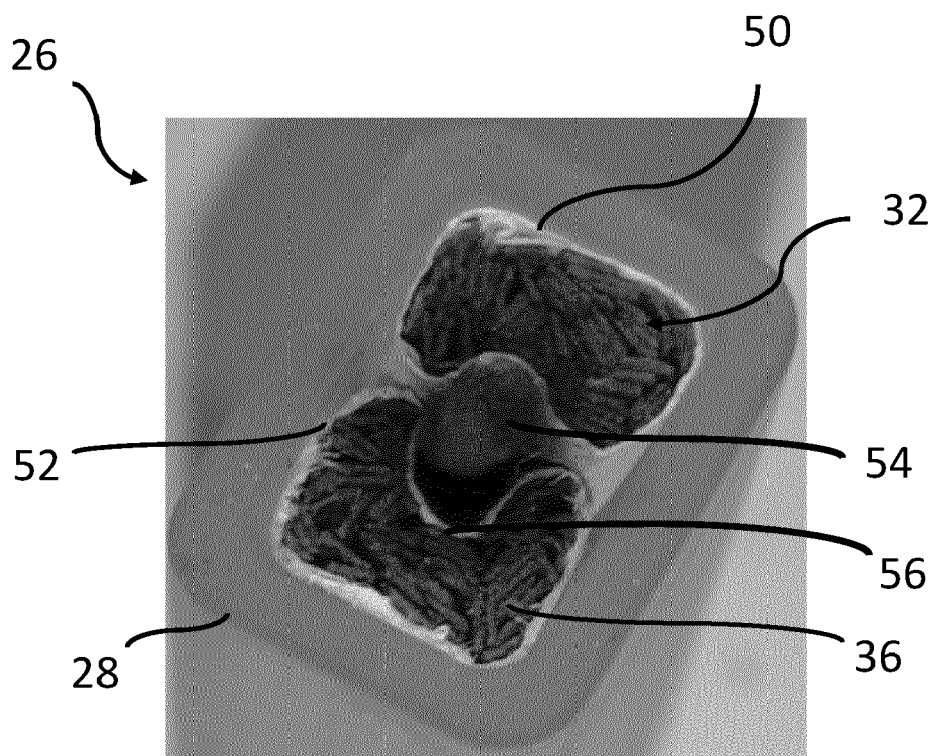


Figure 9

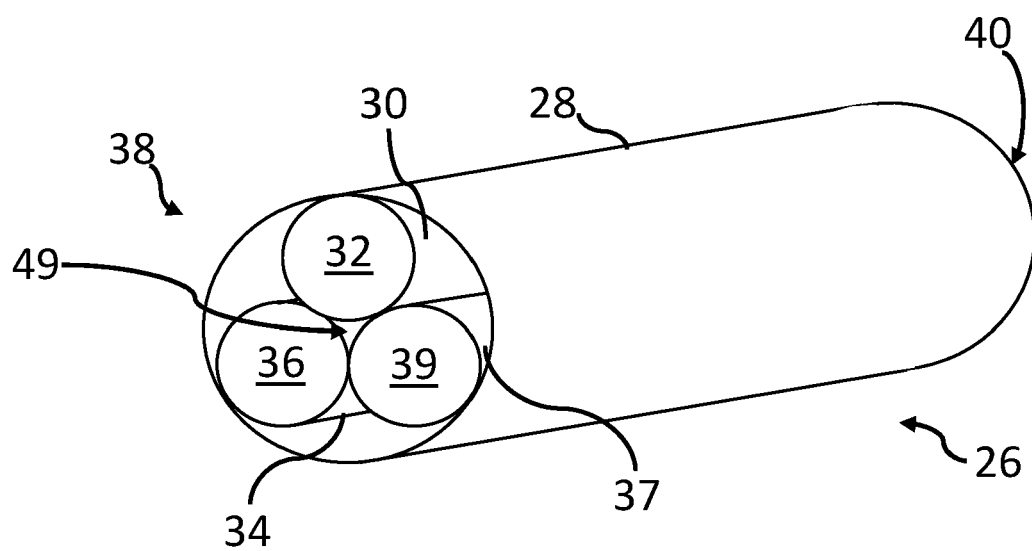


Figure 10

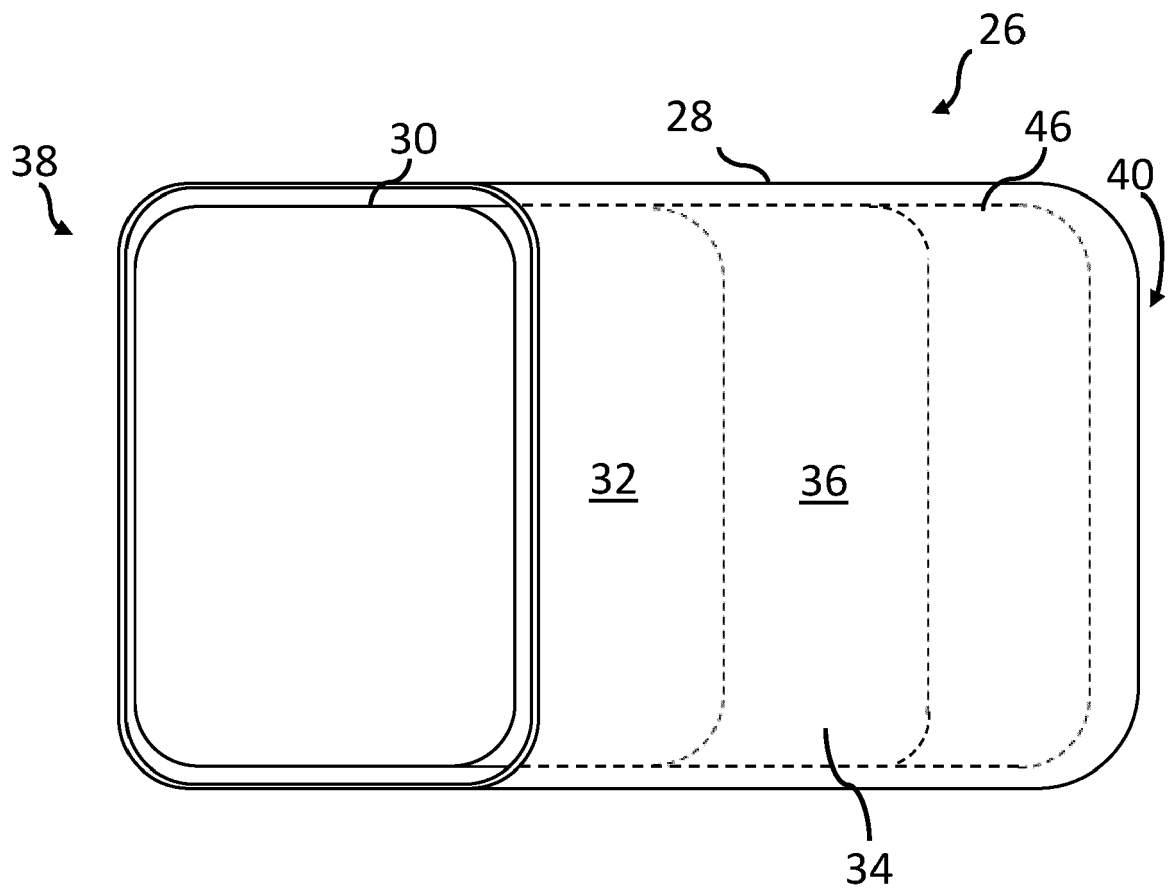


Figure 11

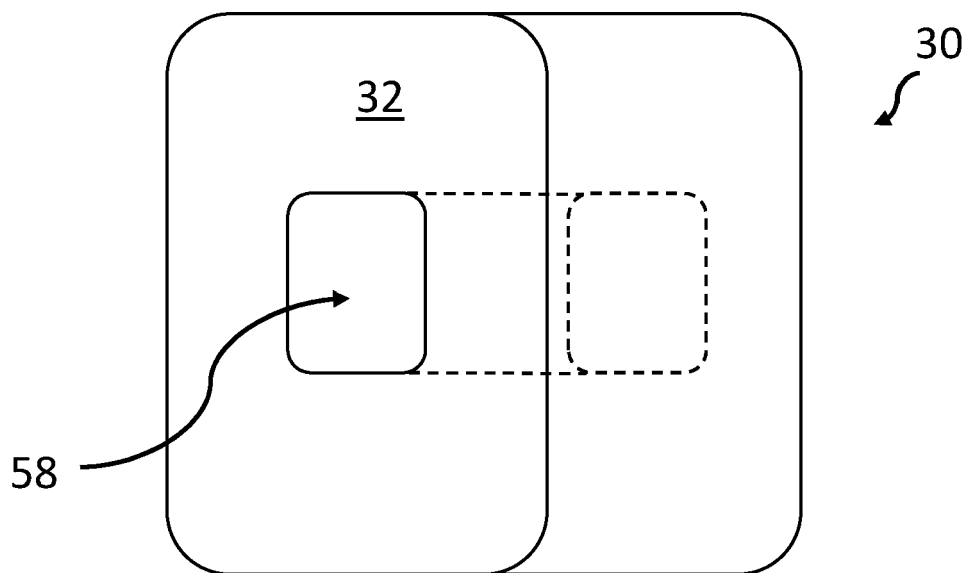


Figure 12



EUROPEAN SEARCH REPORT

Application Number

EP 23 21 7718

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 2023/275318 A1 (JT INT SA [CH]) 5 January 2023 (2023-01-05) * Claims 1, 10, and 13 * * figures 4, 5 * * page 2, line 12 - line 13 * * page 3, line 4 - line 32 * * page 5, line 1 - line 4 * * page 15, line 15 - line 33 * * page 12, line 6 - line 21 * * page 12, line 32 - line 35 * * page 5, line 16 - line 17 * * page 8, line 31 - line 35 * * page 13, line 11 - line 19 * -----	1-11, 13-15	INV. A24D1/20 A24F40/42
X	WO 2023/067729 A1 (JAPAN TOBACCO INC [JP]) 27 April 2023 (2023-04-27) * Title * * Figure description; figures 3, 4 * -----	1,12	TECHNICAL FIELDS SEARCHED (IPC) A24D A24F
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 30 April 2024	Examiner Schäfer, Lucas
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82