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(54) **AEROSOL-GENERATING DEVICE WITH A PIVOTABLE CAP**

(57) An aerosol-generating device comprises a body (2); a case (10) secured about the body (2); and a cap (17) secured to the case (10) by a hinge (18). Sliding the case (10) longitudinally relative to the body (2) causes a contact surface (26,64) of the body (2) to engage a cam surface (22,62) of the cap (17), thereby urging the cap (17) to pivot towards an open position in which a proximal end (6) of the body (2) is exposed. Pivoting the cap (17) from the open position towards a closed position causes the cam surface (22,62) to engage the contact surface (26,64), thereby urging the case (10) to slide longitudinally relative to the body (2) back towards its initial position. The cap (17) can thereby be easily opened and closed using only one hand.

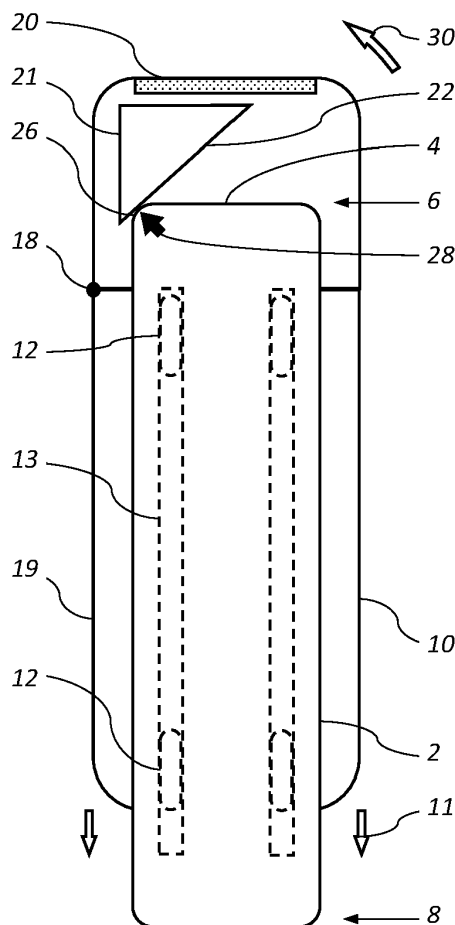


Fig. 1

Description

Technical Field

[0001] The present disclosure relates generally to aerosol-generating devices, more commonly referred to as electronic cigarettes. More particularly, it relates to a cap or cover that selectively protects a mouthpiece of such a device when not in use.

Technical Background

[0002] The term aerosol-generating device (or more commonly electronic cigarette or e-cigarette) refers to handheld electronic apparatus that is intended to simulate the feeling or experience of smoking tobacco in a traditional cigarette. Electronic cigarettes work by heating a vapour-generating substance to generate a vapour that cools and condenses to form an aerosol which is then inhaled by the user through a mouthpiece of the device. Accordingly, using e-cigarettes is also sometimes referred to as "vaping". The vapour-generating substance may, for example, comprise polyhydric alcohols and mixtures thereof such as glycerine or propylene glycol. It may also contain nicotine and other active substances or flavourings.

[0003] Typical e-cigarette vaporizing units, i.e. systems or sub-systems for vaporizing the vapour-generating liquid, utilize a heating element to produce vapour from liquid stored in a capsule, tank or reservoir. When a user operates the e-cigarette, liquid from the reservoir is transported through a liquid transport element, e.g. a cotton wick or a porous ceramic block, and is heated by the heating element to produce a vapour, which cools and condenses to form an aerosol that can be inhaled. To facilitate the ease of use of e cigarettes, removable cartridges are often employed. These cartridges are often configured as "cartomizers", which means an integrated component comprising a liquid store, a liquid transport element and a heater. Electrical connectors may also be provided to establish an electrical connection between the heating element and a power source.

[0004] In general terms, a vapour is a substance in the gas phase at a temperature lower than its critical temperature, which means that the vapour can be condensed to a liquid by increasing its pressure without reducing the temperature, whereas an aerosol is a suspension of fine solid particles or liquid droplets, in air or another gas. It should, however, be noted that the terms 'aerosol' and 'vapour' may be used interchangeably in this specification, particularly with regard to the form of the inhalable medium that is generated for inhalation by a user.

[0005] Aerosol-generating devices are used in a wide range of environments. This includes environments that may be dusty and dirty so it can be challenging to maintain the device by keeping it clean. For reasons of hygiene it is particularly important that the mouthpiece should be kept clean. When not in use, such devices are typically

carried in a pocket or handbag, which in some cases can be a further source of contamination. Additionally, there is a risk that any condensate that remains in the device after use may leak from the mouthpiece and cause damage to its surroundings. For health reasons there may also be a desire to shield the mouthpiece from the environment after it has been in the mouth of the user.

[0006] For these reasons it is desirable to provide the device with a cover that can be positioned to seal around the mouthpiece or at least to conceal and shield it when the device is not in use. When the device is to be used the cover may then be removed to expose the mouthpiece but if the cover is fully detachable it can easily become lost. To address this problem it is known to provide a cover that slides or pivots away from its closed position while remaining attached to the device. However, known covers often require two hands to remove them as opposite forces have to be applied to remove the cover from the device.

Summary of the Invention

[0007] The invention provides an aerosol-generating device comprising:

a body having a proximal end and a distal end;
a case secured about the body and configured to slide longitudinally relative to the body between a first position and a second position, wherein, when the case is in the second position, the proximal end of the body protrudes from the case;
a cap secured to the case by a hinge, about which the cap can pivot between a closed position in which the cap conceals the proximal end of the body in at least the first position of the case and an open position in which the proximal end of the body is exposed;
the body comprising a contact surface and the cap comprising a cam surface configured such that, when the case slides from the first position towards the second position, the contact surface engages the cam surface, thereby urging the cap to move from the closed position towards the open position.

[0008] In accordance with the invention, the cap is provided with a cam surface that is actuated by a relative sliding movement between the body and the case and a substantially point contact between the contact surface of the body to the cam surface of the cap in order to ensure minimal friction forces opposing sliding of the body contact surface on the cam surface while the case is slid relative to the body. The body and case can be configured so that the user can effect such movement using only one hand. Preferably the movement can be effected while the hand is gripping the case in substantially the same position as when using the device. Thereby no significant change of grip is required between opening the cap and starting to use the device, which makes one-handed operation particularly simple.

[0009] In preferred embodiments of aerosol-generating device according to the invention, the cam surface is further configured such that, when the cap is moved from the open position towards the closed position, the cam surface engages the contact surface of the body, thereby urging the case to slide from the second position towards the first position. Accordingly, closing the device may also be carried out simply with one hand and the action of the cam surface returns the body and case to their initial relative positions, ready for future use. While gripping the case of the device in the palm of the hand, the cap may be pivoted towards its closed position by using the thumb or by using any other convenient surface to exert a moment of force on the cap, relative to the hinge. The user's other hand may provide the other convenient surface if it is free.

[0010] In certain embodiments of the invention, as the user grips the case of the device in the palm of the hand, part of the body of the device is accessible to the thumb of the same hand. Thereby the relative sliding movement between the body and the case can be achieved by moving the thumb. The accessible part of the body may be a substantial area of the surface of the body or may be just a small part of the body that projects through an opening in the case to form a sliding button. Preferably, the case is in the form of a sleeve that extends fully around a perimeter of the body. The accessible part may be shaped or textured to make it easy to move with the thumb.

[0011] In some embodiments of the invention, the distal end of the body protrudes from the case when the case is in the first position. This enables the relative sliding movement between the body and the case to be effected by gripping the case in one hand and pushing the protruding distal end of the body against a convenient surface such as a table. This avoids the need to grip with or move the thumb and does not require any manual dexterity on the part of the user.

[0012] The contact surface may be formed by a mouthpiece of the body. The design of the mouthpiece is the primary consideration, to provide a comfortable, convenient and effective vaping experience for the user. If the cam surface of the cap can be configured to co-operate effectively with a contact surface of the mouthpiece itself, that is an ideal solution which simplifies the design of the device and may lower its manufacturing cost and promote easy cleaning. Alternatively, a discrete contact surface may be provided on the body to engage with the cam surface of the cap. This enables the design of the mouthpiece and the design of the contact surface to be optimized independently to fulfil their respective functions. The contact surface may be formed alongside the mouthpiece or a pair of such contact surfaces may be formed on opposite sides of the mouthpiece.

[0013] In a first set of aerosol-generating devices that embody the invention, when the cap is in the closed position the contact surface of the body engages the cam surface proximally of the hinge. In other words, consid-

ering only the dimension parallel to the longitudinal axis of the device, the initial point of contact between the contact surface and the cam surface lies between the hinge and a proximal end of the device. In this first set of devices, when the cap is in the closed position the cam surface is typically inclined away from a side of the device where the hinge is formed. In a more precise definition, an imaginary plane that contains the hinge axis and is parallel to the longitudinal axis of the device will not be intersected by a normal extending away from the cam surface. Because of this geometry, during the opening operation the contact surface exerts a force on the cam surface that will cause the cap to pivot about the hinge in the direction towards its open position. Conversely, during the closing operation the cam surface exerts a force on the contact surface that will cause the body to slide in the distal direction relative to the case.

[0014] In the first set of aerosol-generating devices, the cam surface is on the proximal side of the hinge and can readily be confined within the envelope of the cap. Therefore the cam surface is conveniently hidden from the user and the cam surface cannot interfere with the user's access to the mouthpiece when the cap is in its open position. A disadvantage of this geometry is that once the cap has pivoted through more than 90 degrees, the contact surface of the body can no longer engage the cam surface and urge the cap to open further. Opening of cap through a greater angle must rely on other forces, such as gravity, manipulation by the user (e.g. a brief shake of the device) or the provision of an internal spring.

[0015] In this first set of aerosol-generating devices, the cam surface may be planar or concave. A concave may, depending on the design and surface state of the body at the interaction point between cam surface and contact surface, in particular a mouthpiece part thereof, provide a more favourable angle of the cam surface to be chosen at the point where it first engages the contact surface during the opening operation and at the different point where it first engages the contact surface during the closing operation.

[0016] In most embodiments of the invention, the cam surface and the contact surface will slide over one another as the cap is opened or closed so the point of contact on the cam surface will change. The device is considered to fall within the invention if the foregoing definitions are satisfied at any point along the cam surface that can engage the contact surface of the body during the opening or closing operation.

[0017] An aerosol-generating device according to the invention may further comprise a catch that releasably engages the cap in the closed position. This helps to prevent accidental opening of the cap, particularly in the embodiments in which the distal end of the body protrudes from the case so that it is easy to commence the opening operation, intentionally or not, by applying pressure to the distal end. The catch may employ any suitable means for securing the cap to the case of the device,

mechanical, frictional or magnetic means. Preferably the catch is of a kind that does not require any special manipulation to release it. Instead, it can be released by the same relative sliding movement between the case and the body that is used to open the cap, the catch however requiring the application of a higher force for the initial release of the catch than is required to continue with the opening operation.

[0018] An aerosol-generating device according to the invention may further comprise a spring that urges the cap towards the open position. If the device is provided with a catch, the spring may drive the continued opening of the cap as soon as the force of the catch has been overcome. This simplifies the design of the cam surface, which thereby needs to engage effectively with the contact surface over only a limited range of angles during the initial opening of the cap. Alternatively, the spring may drive only the final stages of the opening of the cap, for example from the point where the cap has opened through a large enough angle for the cam surface to have disengaged from the contact surface.

[0019] The spring may be a torsion spring integrated with the hinge. Energy may be stored in the spring when the cap is closed and delivered from the spring when the cap is reopened to assist movement of the cap towards the open position. Alternatively, the spring may be arranged so that the cap is bi-stable in the open and closed positions but energy needs to be supplied to push it past an intermediate position (which is not necessarily exactly halfway between the open and closed positions). In this latter case, at angles greater than the intermediate position the spring would urge the cap towards the open position but at angles less than the intermediate position it would urge the cap towards the closed position. This may render a catch unnecessary.

[0020] In embodiments, the case of the aerosol-generating device may be fully removable from the body. This may advantageously allow users to change either the case or body in case of defect of one or the other without having to discard the entire aerosol-generating device or allow for user's customization of the aerosol-generating device, in particular by having differently designed outer cases that can fit onto the same body.

[0021] Unless the context clearly requires otherwise, throughout the description and the claims the words "comprise", "comprising", and the like, are to be construed in an inclusive as opposed to an exclusive or exhaustive sense; that is to say, in the sense of "including, but not limited to".

Brief Description of the Drawings

[0022]

Figures 1 to 3 are schematic diagrams in front elevation of an aerosol generating device according to a first embodiment of the invention, respectively in a closed configuration, an open configuration and a

partially closed configuration.

Figure 4 is a schematic transverse cross-section through the device of Figures 1 to 3.

Figure 5 is a schematic transverse cross-section through an alternative variant of an aerosol generating device according to the invention.

Figure 6 is a schematic transverse cross-section through another variant of an aerosol generating device according to the invention.

Figures 7 and 8 are schematic diagrams in front elevation, showing a first form of spring for use with an aerosol generating device according to the invention, respectively in a closed configuration and an open configuration.

Figures 9 to 11 are schematic diagrams showing a second form of spring for use with an aerosol generating device according to the invention, respectively in a closed configuration, a partly open configuration and a fully open configuration.

Figure 12 is a schematic diagram in front elevation, comparing a concave cam surface with a linear cam surface in the embodiment of Figures 1 to 4.

Detailed Description of Embodiments

[0023] In Figures 1 to 4, an aerosol generating device comprises a body 2, which houses the elements that are necessary for the functioning of the aerosol generating device during a vaping session, for example a source of vapour-generating liquid, a heater, a heating chamber, an air flow path from an air inlet through the heating chamber to an air outlet, a power supply, user controls and an electronic controller that controls the operation of the device. All of these elements may be conventional and are not shown in the drawings.

[0024] The air outlet is located in a mouthpiece 4 at a proximal end 6 of the device body 2. In this embodiment the mouthpiece 4 has the same cross-section as the remainder of the body 2 but it may alternatively be provided with a distinct cross-section of a suitable size and shape for the user to receive between their lips when inhaling an aerosol generated by the device. The air inlet of the air flow path may be located at a distal end 8 of the device body 2 or at any other suitable location where air can flow into the inlet from the surrounding atmosphere.

[0025] A case 10 in the form of a sleeve surrounds a perimeter of the body 2 along most of the length of the body 2. The case 10 is configured to slide in a longitudinal direction relative to the body 2 between a first position shown in Figure 1 and a second position shown in Figure 2. At least when the case 10 is in the second position, the proximal end 6 of the body 2 projects from a proximal end of the case 10 so that the mouthpiece 4 is accessible to a user. At least when the case 10 is in the first position, the distal end 8 of the body 2 projects from a distal end of the case 10. By gripping the case 10 and applying pressure to the distal end 8 of the body, the case 10 can be urged to slide from the first position towards the sec-

ond position, as shown by arrows 11. Such pressure may be applied by the user's hand that is not gripping the device or by pushing the distal end 8 against a convenient surface such as a table to facilitate one-handed activation of the device.

[0026] The mounting of the case 10 on the body 2 is schematically shown as comprising a set of lugs 12 on the case 10 that are received in a set of tracks 13 in the body 2. The lugs 12 travel along the tracks 13 such that first and second ends of the tracks 13 respectively define the first longitudinal position and the second longitudinal position of the case 10 relative to the body 2. The drawings show a pair of tracks 13 on the front of the body 2 and there is a similar pair of tracks 13 (not visible in the drawings) on the back of the body 2. It is not essential that the number of tracks should be four or that they should be arranged in this manner. For example, there could be just two tracks 13. The tracks 13 could be located at the opposing sides of the body 2 (as viewed in Figures 1 to 3) instead of on the front and back surfaces of the body 2. The positions of the lugs 12 and the tracks 13 could be exchanged so that the lugs 12 are formed on the body 2 and are received in tracks 13 in the case 10. The drawings show a pair of the lugs 12 received in each track 13 but a single, elongated lug could perform the same function. If the case 10 is in the form of a sleeve substantially surrounding a perimeter of the body 2 then it is not essential to provide tracks 13 and lugs 12 to guide the relative longitudinal movement. However, without the lugs 12, alternative means must be provided for stopping further movement when the first or the second position has been reached.

[0027] Figure 5 is a schematic cross-section illustrating an alternative way of configuring the body 2 to be manually slidable relative to the case 10. In this variant, a sliding button 14 is formed integrally with the body 2 or is attached to the body 2 and projects through a longitudinal aperture 15 in the case 10. The button 14 is positioned so that when the user grips the case 10 in the palm of one hand, the button 14 is accessible to the thumb of the same hand. Thereby the user can slide the button 14 along the aperture 15 to move the body 2 longitudinally relative to the case 10. With this variant, because single-handed activation of the device is possible using the thumb, it may not be necessary for the distal end 8 of the body 2 to project from the case 10 in order to be pushed against an external surface.

[0028] In the schematic illustrations of Figures 4 and 5, the transverse cross-section of the body 2 is substantially rectangular. However, other shapes of body are possible, for example a circular cross-section or the oval cross-section shown in Figure 6. Independently, Figure 6 also illustrates a further variant of the mounting of the case 10 on the body 2. In this variant, the case 10 is not in the form of a sleeve but extends approximately only halfway around the perimeter of the device. Opposite longitudinal edges 16 of the case 10 are received in a pair of tracks 13 at the sides of the body 2. In this variant, part

of the external surface of the device is formed by the body 2 and part by the case 10. The device may be held so that one part of the surface is gripped by the fingers of the user's hand, while the other part of the surface is gripped by the thumb of the same hand, then the relative sliding movement between the body 2 and the case 10 can be effected by moving the thumb relative to the fingers, in much the same way as in Figure 5. The external surfaces of the body 2 and the case 10 may be shaped or textured to enhance the user's grip.

[0029] A cap 17 is mounted on the case 10 via a hinge 18 at the proximal end of the case 10. The hinge 18 is located at one side 19 of the case 10 and the axis of the hinge is generally perpendicular to the longitudinal axis of the device so the cap 17 can pivot about the hinge 18 between the closed position shown in Figure 1 and the open position shown in Figure 2. When the cap 17 is in the open position, the mouthpiece 4 of the device is accessible to the user. The cap 17 contains an absorbent pad 20 for absorbing condensate or other residues that may escape from the mouthpiece 4 when the device is not in use. A seal (not shown) may be provided between the case 10 and the cap 17 to prevent leakage of liquid from the device when the cap 17 is in the closed position.

[0030] A cam 21 is mounted inside the cap 17 and comprises a cam surface 22 that generally faces towards the body 2. The cam surface 22 extends very approximately in a radial direction away from the hinge 18 and is inclined away from the side of the device where the hinge 18 is formed, i.e. the left side 19 as seen in Figures 1 to 3. Figure 1 shows how, as the case 10 slides from the first position towards the second position, a contact surface 26 of the body 2 comes into engagement with the cam surface 22. The body 2 thereby applies a force to the cam 21 in a direction normal to the cam surface 22 at the point of contact, as indicated by arrow 28. Because the point of contact is located proximally of the hinge 18 and because the cam surface 22 is inclined away from the hinge side 19 of the device, the force 28 is in such a direction that it urges the cap 17 to pivot about the hinge 18, away from the closed position shown in Figure 1 and towards the open position shown in Figure 2. The pivotal movement of the cap 17 is indicated by arrow 30. Preferably, the geometry is such that the force 28 acts on the cap 17 in a substantially circumferential direction with respect to the hinge 18.

[0031] As the user continues to slide the case 10 towards the second position, the contact surface 26 slides along the cam surface 22, while remaining in engagement with it and continuing to urge the cap 17 further towards its open position until either the case 10 reaches the second position or the contact surface 26 reaches the end of the cam surface 22. In the present embodiment, the cam surface 22 is entirely proximal of the hinge 18, which implies that the cam 21 cannot be pushed through an angle of more than 90 degrees. Therefore to pivot of the cap 17 further to the fully open position shown in Figure 2, means other than pushing the body 2 against

the cam 21 must be employed. If the hinge 18 moves sufficiently freely and the device is held in the generally upright orientation shown in the drawings, then gravity acting on the combined mass of the cap 17 and the cam 21 may be sufficient to effect that further pivotal movement. Alternatively, the user may manipulate the device by inclining it or flicking it sideways to induce the cap 17 to open fully. A further option is to provide a spring that takes over from the cam 21 to urge the cap 17 to complete its pivotal movement to fully open position.

[0032] A first possible implementation of the spring is shown schematically in Figures 7 and 8. A torsion spring 32 is integrated with the hinge 18. A first end 34 of the spring 32 is secured to the case 10 and a second end 36 of the spring 32 is secured to the cap 17. In Figure 7, the cap 17 is in its closed position and the spring 32 is deformed, storing energy and biasing the cap 17 to pivot away from the closed position. The cap 17 is held closed by a magnetic catch 37, in which the attraction between a pole piece 38 and a magnet 39 is sufficient to resist the biasing force of the spring 32. Other types of catch could be provided, in particular a mechanical catch (not illustrated) in which a slight projection on one of the cap 17 and the case 10 releasably snaps into engagement with a corresponding recess on the other of the cap 17 and the case 10.

[0033] When the user slides the case 10 relative to the body 2, the force of the body 2 acting against the cam surface 22 (not shown in Figures 7 and 8) is added to the force of the spring 32 and may be sufficient to release the catch 37. Then the cap 17 will begin to pivot away from its closed position and the combined force will continue to move it towards the open position shown in Figure 8. When the cap 17 has pivoted through such an angle that the contact surface 26 of the body 2 can no longer engage the cam surface 22, the spring 32 alone continues to drive the cap 17 to the open position. In this implementation, the spring 32 is effective to drive the cap 17 towards its open position as soon as the catch 37 has been released, therefore there may be a limited need to design the cam 21 such that it can continue driving the movement of the cap 17 after a small initial pivoting movement has been achieved. The design of the cam 21 may then be more focused on the closing of the cap 17, described below.

[0034] A second possible implementation of the spring is shown schematically in Figures 9 to 11. A spring 40 in the form of a resilient strip is mounted relative to the case 10 (schematically shown by a dashed line) such that the spring 40 is secured at its ends 42 but can flex resiliently in a central region. As the cap 17 (not shown in Figures 9 to 11) pivots about the hinge 18, a projection 44 from the cap 17 pivots with it from the closed position represented by Figure 9, through an intermediate position represented by Figure 10 to the open position represented by Figure 11. It can be seen that when the cap 17 is in its closed position (Figure 9) or its open position (Figure 11), the projection 44 lies parallel to the spring strip 40

so the spring is in a relaxed state and the cap 17 is held stably at rest in either of those positions. In order to pivot the cap 17 away from the closed position (Figure 9) towards the intermediate position (Figure 10), a force needs to be applied to deform the spring 40, therefore the spring 40 resists the movement and biases the cap 17 back towards the closed position. For this reason, there may be no need for a catch to retain the cap 17 in its closed position. Provided the user slides the case 10 relative to the body 2 with sufficient force, the resistance of the spring 40 can be overcome and the cap 17 can be pivoted to its intermediate position (Figure 10), where the deformation of the spring 40 is at a maximum. In the illustrated example this is when the projection 44 is at an angle of 90 degrees. At greater angles, the energy stored in the spring 40 can be reduced by increasing the angle further, therefore the spring 40 biases the cap 17 to pivot towards the open position (Figure 11). By changing the orientation of the projection 44 relative to the cap 17, it is possible to arrange for the intermediate position to be at a pivot angle other than 90 degrees so, for example, the angle at which the spring can begin to bias the movement of the cap 17 towards its open position can be less than 90 degrees. This is advantageous in embodiments of the invention where the geometry of the cam surface 22 is such that it must disengage from the contact surface 26 before an angle of 90 degrees has been reached.

[0035] Returning to Figures 1 to 3, when it is desired to close the cap 17, for example at the end of a vaping session, this can be done by gripping the case 10 of the device in one hand and using the other hand (if free) or any other convenient surface to apply a force to the cap 17 that will cause it to rotate in the direction indicated by arrow 50, back towards the closed position (Figure 2). If a spring 32,40 is provided, which biases the cap 17 towards the open position, the applied force will need to be sufficient to overcome the bias of the spring. At a certain angle, shown in Figure 3, the cam surface 22 will re-engage the contact surface 26 of the body 2 and will exert a force on the body 2 in a direction normal to the cam surface 22, as indicated by arrow 52. Because the cam surface 22 is inclined away from the hinge side 19 of the device, a component of the applied force will act longitudinally on the body 2 and will urge the body 2 to slide in the distal direction relative to the case 10 or, equivalently, will urge the case 10 to slide in the proximal direction relative to the body 2, as indicated by arrows 54. With further pivoting, the cap 17 reaches its closed position and is optionally secured by a catch 37, then the case has returned to the first position and the device has been reset to its initial configuration.

[0036] When the contact surface 26 of the body 2 engages the cam surface 22, the force acting between them will be in the direction normal to the two surfaces 22,26 at their point of contact. By comparing Figures 1 and 3, it can be seen that the point of contact moves along the cam surface 22 and contact surface 26 the owing to the combined pivotal movement of the cap 17 and longitudi-

nal movement of the case 10 relative to the body 2, therefore in general the forces acting between the body 2 and the cap 17 depend on the profiles of both the cam surface 22 and the contact surface 26.

[0037] In the illustrated embodiment, the contact surface 22 is a corner of the body 2 having a small radius so the angle of the force is substantially determined by the shape of the cam surface 22. In order for the force to provide the greatest moment about the hinge 18 when opening the cap 17, its direction should be generally circumferential relative to the hinge 18, which will be the case when the cam surface 22 at the point of contact is generally aligned along a radius of the hinge 18. Thus a linear cam surface 22 extending radially from the hinge is likely to be optimal for opening the cap 17. However, this may not be optimal for applying a generally longitudinal force to the body 2 when the cap 17 is being closed. For this reason, it may be desirable to provide the cam surface 22 with a concave profile, as shown in solid lines in Figure 12. The concave profile such that it is generally radial close to the hinge 18, where the initial engagement with the contact surface 26 occurs during opening of the cap 17. Further from the hinge 18, where the initial engagement with contact surface 26 occurs during closing of the cap 17, the cam surface 22 is inclined at a greater angle. This provides a more favourable angle for the force that urges the relative longitudinal movement between the body 2 and the case 10 compared with a linear cam surface 22' that is orientated radially to the hinge 18 along the whole of its length. Figure 12 uses a solid arrow 52 to indicate the angle of the force applied by the concave cam surface 22 and uses an open arrow 52' to indicate the angle of the force that a linear cam surface 22' (shown in dashed lines) would apply in comparison. The concave cam surface 22 may also have the advantage that it extends further across the width of the cap 17 and therefore can maintain engagement with the contact surface 26 through a wider opening angle of the cap 17.

Claims

1. An aerosol-generating device comprising:

a body (2) having a proximal end (6) and a distal end (8);
a case (10) secured about the body (2) and configured to slide longitudinally relative to the body (2) between a first position and a second position, wherein, when the case (10) is in the second position, the proximal end (6) of the body (2) protrudes from the case (10);
a cap (17) secured to the case (10) by a hinge (18), about which the cap (17) can pivot between a closed position in which the cap (17) conceals the proximal end (6) of the body (2) in at least the first position of the case and an open position in which the proximal end (6) of the body is ex-

posed;

the body (2) comprising a contact surface (26,64) and the cap (17) comprising a cam surface (22,62) configured such that, when the case (10) slides from the first position towards the second position, the contact surface (26,64) engages the cam surface (22,62), thereby urging the cap (17) to move from the closed position towards the open position.

2. An aerosol-generating device according to claim 1, wherein the cam surface (22,62) is further configured such that, when the cap (17) is moved from the open position towards the closed position, the cam surface (22,62) engages the contact surface (26,64) of the body (2), thereby urging the case (10) to slide from the second position towards the first position.
3. An aerosol-generating device according to claim 1 or claim 2, wherein, when the case (10) is in the first position, the distal end (8) of the body (2) protrudes from the case (10).
4. An aerosol-generating device according to any preceding claim, wherein the case (10) is a sleeve that extends fully around a perimeter of the body (2).
5. An aerosol-generating device according to any preceding claim, wherein the contact surface (26,64) is formed by a mouthpiece (4) of the body (2).
6. An aerosol-generating device according to any of claims 1 to 5, wherein, when the cap (17) is in the closed position, the contact surface (26) of the body engages the cam surface (22) proximally of the hinge (18).
7. An aerosol-generating device according to claim 6, wherein, when the cap (17) is in the closed position, the cam surface (22) is inclined away from a side (19) of the device where the hinge (18) is formed.
8. An aerosol-generating device according to claim 6 or claim 7, wherein the cam surface (22) is planar or concave.
9. An aerosol-generating device according to any preceding claim, further comprising a catch (37) that releasably engages the cap (17) in the closed position.
10. An aerosol-generating device according to any preceding claim, further comprising a spring (32,40) that urges the cap (17) towards the open position.
11. An aerosol-generating device according to any preceding claim, wherein the case is removably secured about the body.

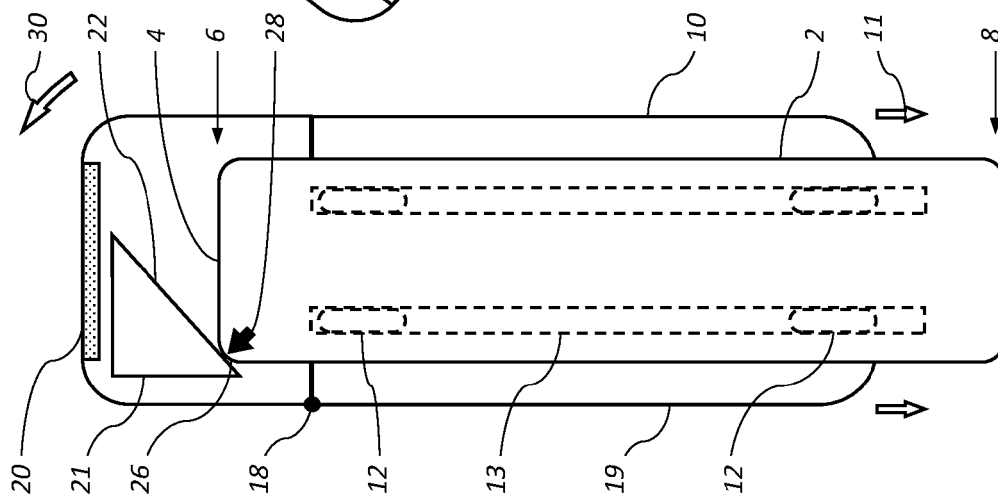


Fig. 1

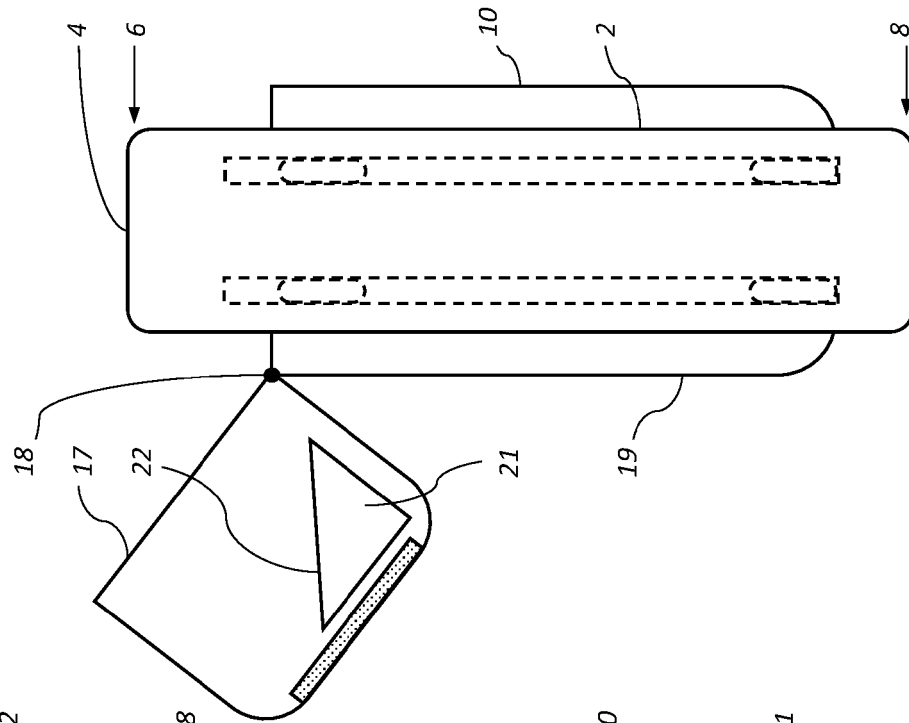


Fig. 2

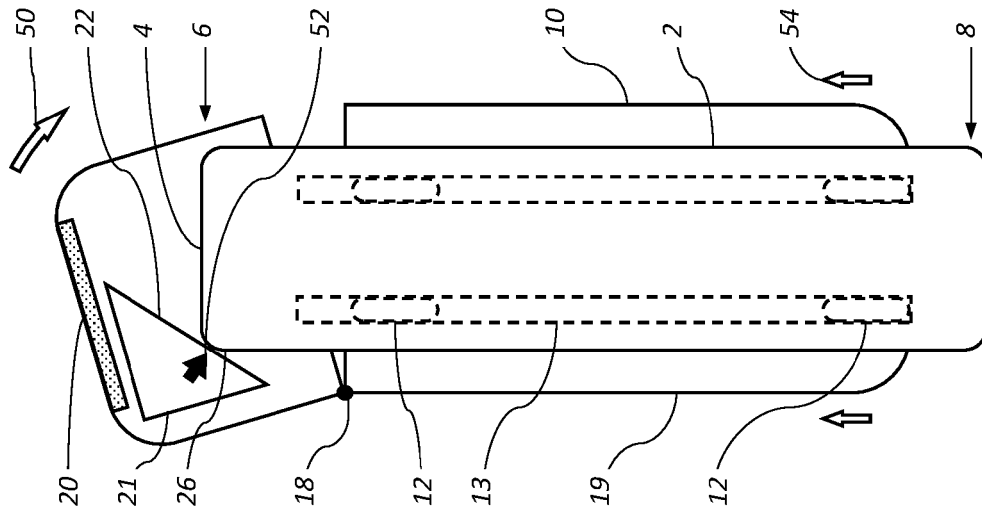


Fig. 3

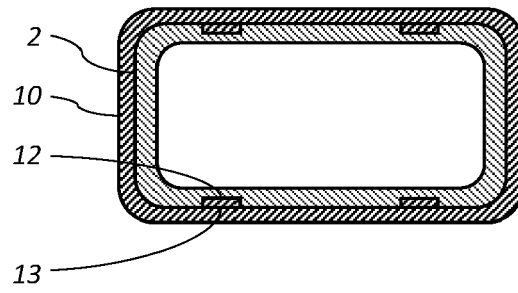


Fig. 4

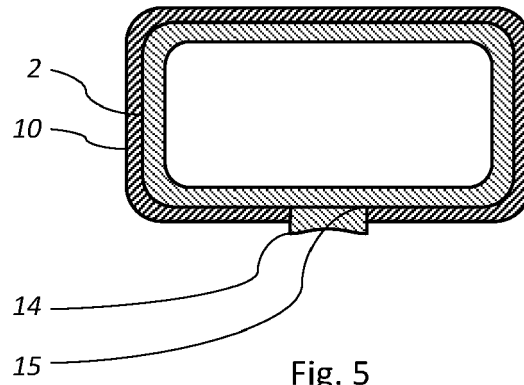


Fig. 5

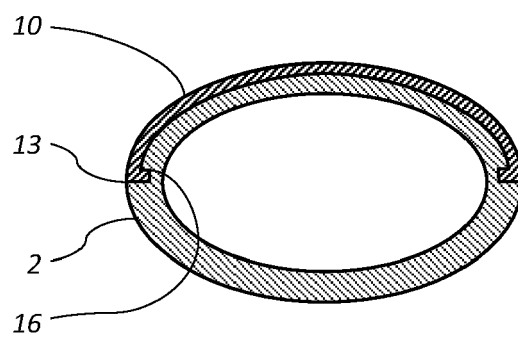


Fig. 6

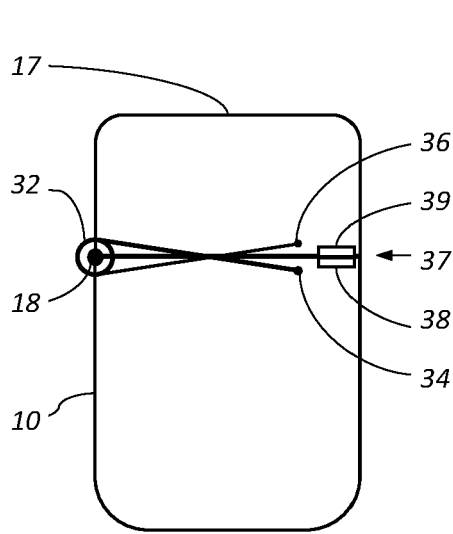


Fig. 7

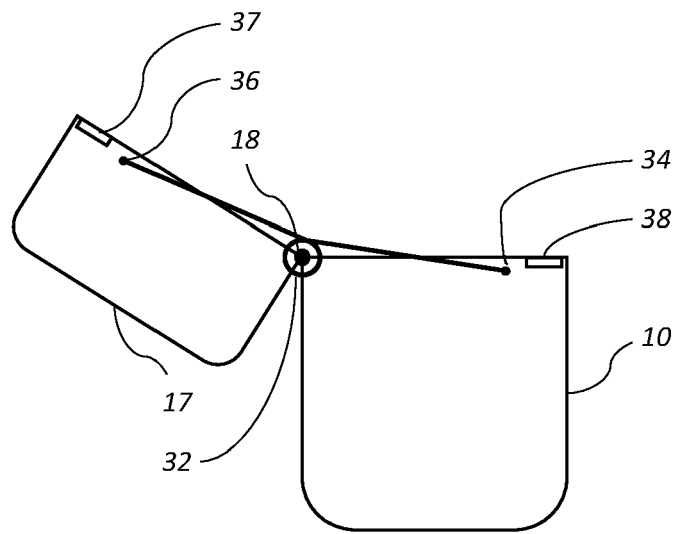


Fig. 8

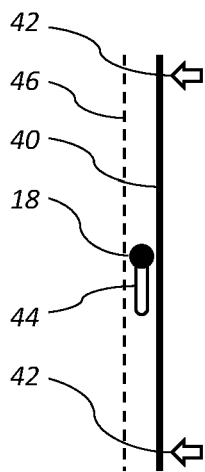


Fig. 9

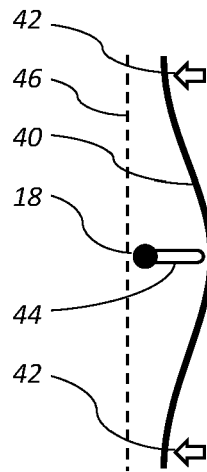


Fig. 10

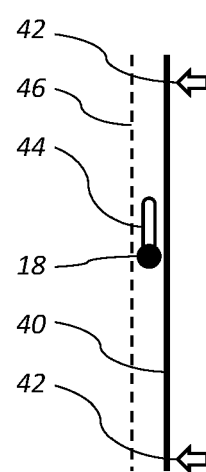


Fig. 11

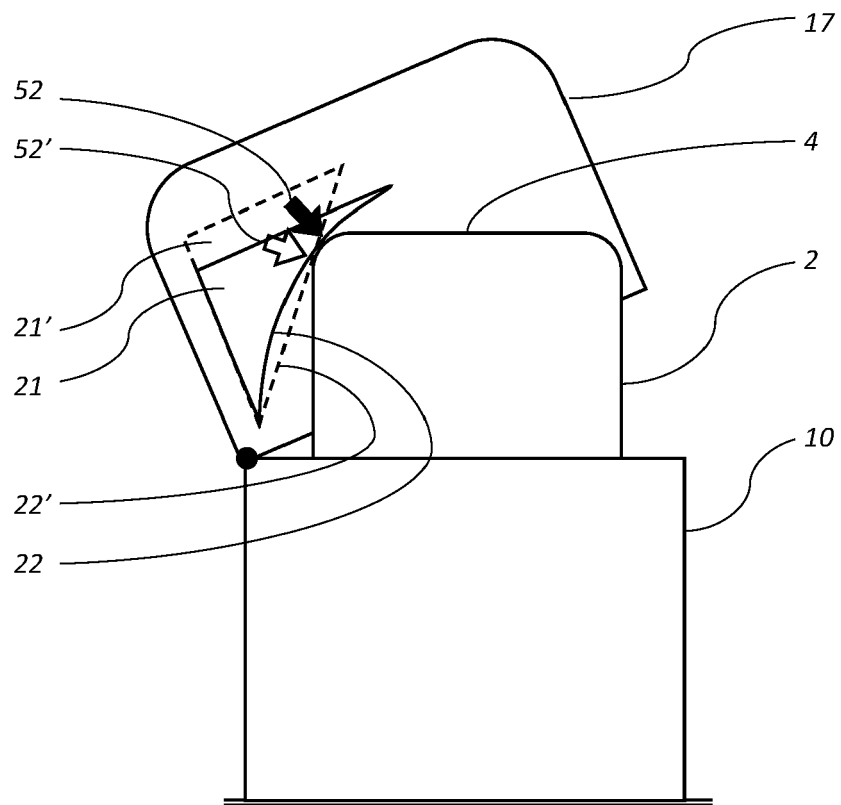


Fig. 12



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Y	* paragraph [0021] - paragraph [0022];	6, 7, 9, 10	
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A	figure 5 * -----	11	
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Y	* paragraph [0032] - paragraph [0040];	7, 9, 10	
	figures 2, 3 * -----		
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	figure 2 * -----		B65D
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 21 July 2022	Examiner Koob, Michael
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