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(54) **AEROSOL GENERATION DEVICE**

AEROSOLERZEUGUNGSVORRICHTUNG

DISPOSITIF DE GÉNÉRATION D'AÉROSOL

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(56) References cited:

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Description

FIELD OF THE INVENTION

[0001] The present disclosure relates to an aerosol generation device in which an aerosol generating substrate is heated to form an aerosol. The disclosure is particularly applicable to a portable aerosol generation device, which may operate at low temperature. Such devices may heat, rather than burn, tobacco or other suitable aerosol substrate materials by conduction, convection, and/or radiation, to generate an aerosol for inhalation.

BACKGROUND

[0002] The popularity and use of aerosol generation devices (also known as e-cigarettes and heat-not-burn products) has grown rapidly in the past few years. Various devices and systems are available that heat or warm aerosolizable substances as opposed to burning tobacco in conventional tobacco products.

[0003] Devices of this type generate an aerosol or vapour by heating an aerosol substrate that typically comprises moist leaf tobacco or other suitable solid aerosolizable material to a temperature typically in the range 150 °C to 350 °C. Heating such an aerosol substrate, but not combusting or burning it, releases an aerosol that comprises the components sought by the user but not the toxic and carcinogenic byproducts of combustion and burning. Furthermore, the aerosol produced by heating the tobacco or other aerosolizable material does not typically comprise the burnt or bitter taste resulting from combustion and burning that can be unpleasant for the user and so the substrate does not therefore require the sugars and other additives that are typically added to such materials to make the smoke and/or vapour more palatable for the user. In such devices, the aerosol substrate is heated by a heating element, for example in a heating chamber. The aerosol substrate is consumed through generation of the aerosol and must be regularly replaced. It is therefore desirable to provide a convenient way of replacing the aerosol substrate in the heating chamber. US 2014/060554 A1 discloses an electronic smoking article that provides for improved aerosol delivery.

[0004] Additionally, it is desirable to generate more aerosol from a given quantity of aerosol substrate, and therefore it is desirable to provide a device that can heat the aerosol substrate to generate aerosol more efficiently.

SUMMARY OF THE INVENTION

[0005] According to a first aspect, the following disclosure provides an aerosol generation device comprising: An aerosol generation chamber configured to receive and heat a substrate to generate aerosol, the aerosol

generation chamber comprising at least a heating element; an oblong housing; a cover which can be in a closed position covering the aerosol generation chamber and in an open position exposing the aerosol generation chamber; and a tray configured to receive and hold the substrate, the tray being connected to the cover; wherein when the cover is in the open position, the tray can receive the substrate, and the received substrate is located at least partly outside of the aerosol generation chamber, and when the cover is in the closed position, a received substrate is fully contained in the aerosol generation chamber and in contact with the heating element; and wherein the cover can be moved from the open position to the closed position by rotation, whereby the tray is translated in a longitudinal direction of the housing and towards the heating element and in a direction substantially perpendicular to the longitudinal direction of the housing such that a substrate held by the tray is put in contact with the heating element.

[0006] The tray provides an intuitive and robust way to replace the aerosol substrate consumable by removing a used substrate from the tray and putting an unused substrate on the tray. By closing the cover, the substrate is then moved into the aerosol generation chamber, providing a simple and intuitive way for a user to place the substrate in the right position. Additionally, by movement of the tray into the aerosol generation chamber, the substrate is put in contact with the heating element, thereby improving aerosol generation efficiency.

[0007] Preferably, the tray comprises means for fixing the substrate to the tray.

[0008] This ensures that the substrate is fixed and does not move with respect to the tray. Thus, the substrate is always in the correct position with respect to the heating element and in contact with the same when the cover is in closed position, so aerosol generation efficiency is improved.

[0009] Preferably, the means for fixing are one or more protrusions which can engage with respective recesses of the substrate.

[0010] This provides a durable, intuitive and straightforward way to realize the fixing as discussed above.

[0011] Preferably, the recesses can be formed by stamping the substrate with the one or more protrusions.

[0012] According to the fourth aspect, no recesses must be formed in the substrate during production, making the substrate more cost-efficient by saving one production step. A flexible substrate can then be "stamped" by means of the protrusions on the tray to fulfil the same purpose as a previously provided recess.

[0013] Preferably, the movement of the tray in the direction substantially perpendicular to the longitudinal direction of the housing is caused by a slanted wall of the aerosol generation chamber.

[0014] A slanted wall provides a straight-forward and durable way to guide the tray towards the desired position. The slanted wall therefore ensures that the substrate is in contact and/or press towards the heating element,

thus improving aerosol generation efficiency.

[0015] Preferably, a cross-section of the tray has a generally L-shaped configuration, the long leg of the L-shape being oriented substantially parallel to the longitudinal direction of the housing, and the short leg extending from the long leg towards the heating element.

[0016] A L-shaped tray ensures that a substrate placed on the tray does not slide downwards from the tray. Furthermore, the short leg eases handling of the device, as a user can easily insert a substrate which is then held in place by the short leg of the L-shaped tray. Thus, it provides a way of intuitive handling while improving aerosol generation efficiency of the device.

[0017] Preferably, the cover is connected to the housing by means of a hinge which allows for the rotation of the cover.

[0018] The connection to the housing ensures that the cover is not lost when the device is not in use. The rotational hinge provides an intuitive way of handling the device for a user.

[0019] Preferably, the cover is biased towards the closed position.

[0020] This ensures that the device is closed properly after a substrate has been inserted. Furthermore, it provides haptic feedback to a user.

[0021] Preferably, the biasing is realized by means of a spring.

[0022] This provides a straight-forward, durable and cost-efficient way for the biasing as discussed above.

[0023] Preferably, the tray is connected to the cover such that the rotation of the cover around the hinge results in the translation the tray.

[0024] This provides an intuitive and robust way for placing the substrate in the correct position with respect to the heating element.

[0025] Preferably, the connection between the tray and the cover is realized by means of a second hinge, the second hinge being distanced from the hinge which allows for the rotation of the cover.

[0026] This provides an intuitive and robust way for placing the substrate in the correct position with respect to the heating element.

[0027] Preferably, the rotation of the cover is translated into the translation of the tray by means of a lever.

[0028] This provides an intuitive and robust way for placing the substrate in the correct position with respect to the heating element.

[0029] Preferably, the tray moves towards the center of the housing along the longitudinal direction of the housing as the cover moves from the open position to the closed position, and in the opposite direction as the cover moves from the closed position to the open position.

[0030] This provides an intuitive and robust way for placing the substrate in the correct position with respect to the heating element. Furthermore, it provides an easy way to replace a used substrate by an unused substrate.

[0031] Preferably, the substrate is moved away from the center of the housing along the longitudinal direction

of the housing by means of the short leg when the cover moves from the closed position to the open position.

[0032] This provides an easy way to replace a used substrate by an unused substrate.

[0033] Preferably, the substrate is moved away from the center of the housing along the longitudinal direction of the housing by means of the means for fixing the substrate to the tray.

[0034] This ensures that the substrate is placed in the correct position with respect to the heating element, thus improving aerosol generation efficiency.

[0035] Preferably, the substrate has the shape of a plate, pad, or disk.

[0036] A substrate having such a shape is substantially flat and can easily be put in contact with a substantially flat heating element, ensuring permanent contact and improving aerosol generation efficiency. Also, the ratio between the surface in contact with the heating element and the volume of the substrate is relatively large, thereby further increasing aerosol generation efficiency.

[0037] Preferably, the substrate has an upper surface and a lower surface, and in the closed position of the cover the lower surface is in contact with the long leg of the tray, and the upper surface is in contact with the heating element.

[0038] By means of this aspect, a substrate may be fixed between the tray and the heating element and pressed towards the heating element by movement of the long leg of the tray towards the heating element. Thus, aerosol generation efficiency is improved.

[0039] Preferably, at least one of the side surfaces of the substrate when received by the tray is in contact with the short leg.

[0040] This provides an intuitive and robust way for a user to place a substrate on the tray correctly. By holding the substrate in place by means of the short leg, the position of the substrate relative to the heating element is fixed, thus also improving aerosol generation efficiency of the device.

BRIEF DESCRIPTION OF THE DRAWINGS

[0041]

Figure 1 shows the aerosol generation device in side view, with the cover in open position.

Figure 2 shows the aerosol generation device in side view, with the cover in closed position.

Figure 3 shows a cross-sectional side view of the aerosol generation device, with the cover in open position and a substrate being inserted in the device.

Figure 4 shows a close-up view of a tray.

Figure 5 shows a cross-sectional side view of the aerosol generation device, with the cover in open

position.

Figure 6 shows a cross-sectional side view of the aerosol generation device, with the cover in closed position.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0042] In the following, preferred embodiments of the present invention will be described in detail with reference to the accompanying drawings. In the description of the drawings, the same or similar reference numerals denote the same or similar parts. It should be noted that the drawings are schematic, and the ratios of dimensions and the like may be different from the actual ones.

[0043] The aerosol generation device 1 is configured to work with a substantially cuboid substrate 11, preferably having a flat shape. In a typical example, the size of the substrate 11 is $18 \times 12 \times 1.2$ mm. Generally, the length of the substrate in the preferred embodiments is between 40 and 10 mm, preferably between 30 and 12 mm, more preferably between 25 and 14 mm, and most preferably between 22 and 15 mm. The width of the substrate in the preferred embodiments is between 30 and 6 mm, preferably between 25 and 8 mm, more preferably between 20 and 9 mm, and most preferably between 16 and 9 mm. The height of the substrate in the preferred embodiments is between 3 and 0.5 mm, preferably between 2 and 0.6 mm, more preferably between 1.8 and 0.8 mm, and most preferably between 1.6 and 0.9 mm.

[0044] The aerosol substrate may for example comprise nicotine, tobacco and/or an aerosol former. Tobacco may take the form of various materials such as shredded tobacco, granulated tobacco, tobacco leaf and/or reconstituted tobacco. Suitable aerosol formers include: a polyol such as sorbitol, glycerol, and glycols like propylene glycol or triethylene glycol; a non-polyol such as monohydric alcohols, acids such as lactic acid, glycerol derivatives, esters such as triacetin, triethylene glycol diacetate, triethyl citrate, glycerin or vegetable glycerin. In some embodiments, the aerosol generating agent may be glycerol, propylene glycol, or a mixture of glycerol and propylene glycol. The substrate may also comprise at least one of a gelling agent, a binding agent, a stabilizing agent, and a humectant. The aerosol substrate may be porous such that air can flow through the substrate and collect aerosol as it does so. The substrate may for example be a foam, or packed strands or fibres. The substrate may be formed through an extrusion and/or rolling process into a stable shape. The aerosol generating substrate may be shaped to provide one air flow channel or multiple air flow channels. These can be aligned with the air flow channel of the aerosol generating device in order to increase air flow through the heating chamber. The substrate is exposed with a bare external surface. Alternatively, the substrate may comprise an air-permeable wrapper covering at least part of a surface of the aerosol

generating substrate. The wrapper may, for example, comprise paper and/or nonwoven fabric.

[0045] The aerosol generation chamber 15 may simply be an interior volume of the housing 2, but the aerosol generation chamber 15 is preferably enclosed by an insulating enclosure within the housing 11, so that additional components such as control circuitry and an electrical power source (not shown) are insulated from heat provided within the aerosol generation chamber 15. The housing may generally be made from any rigid material such as a thermoplastic or a metal (e.g. aluminium). The insulating enclosure may be made from a heat-resistant material such as polyethylene terephthalate (PET), polybutylene terephthalate (PBT), or polyamide (PA) in order to prevent thermal deformation or melting. The heat resistant material may be a super engineering plastic such as polyimide (PI), polyphenylenesulfide (PPS) or polyether ether ketone (PEEK).

[0046] The substrate 11 is positioned in the aerosol generation chamber 15 by inserting a tray 5 carrying the substrate 11 into the aerosol generation chamber 15. The substrate can be placed onto the tray when a cover 7 is in an open position. When the tray 5 is inserted into the aerosol generation chamber 15, the tray 5 is guided into a position where the substrate 11 is held in the aerosol generation chamber 15, as depicted in Fig. 6. However, as shown in Figs. 1 and 3, the tray 5 may also be in a second position, where the substrate 11 can be placed onto or removed from the tray 5.

[0047] During or after a time at which the substrate 11 is heated to generate the aerosol, air is driven towards the mouthpiece 3 to provide the aerosol to a user. In some embodiments, the air is driven by a user inhaling. In other embodiments, the aerosol generation device 1 may comprise a pump for pumping air towards the mouthpiece 3 to provide the aerosol.

[0048] Referring to Fig. 1, an aerosol generation device 1 is illustrated. The device may comprise an oblong housing 2, and a mouthpiece 3 which can be used to suck the generated aerosol out of the device. In the open position, as is illustrated in Fig. 1, a tray 5 is exposed, because cover 7 is rotated towards the open position. Tray 5 may comprise a protrusion 6 or other means to fixate a substrate which may be inserted by a user. The cover 7 may be translated into the closed position by rotating it in rotational direction 8 around hinge 16.

[0049] Figure 2 depicts the same embodiment of the aerosol generation device 1 as Figure 1. However, in Figure 2, the cover 7 is in closed position, covering aerosol generation chamber 15. From the closed position, the cover can be translated back to the open position by rotating it in the opposite direction of rotational direction 8.

[0050] Figure 3 depicts a cross-sectional view of the embodiment of aerosol generation device 1, with the cover 7 in open position. Cover 7 is rotatably mounted to the housing 2 by means of a first hinge 16. In a preferred embodiment, the first hinge 16 may be located in a rotation element which may be rigidly connected to cover 7.

However, in other embodiments, different solutions are possible, such as a hinge which is placed directly on the cover, a lever, or the like.

[0051] In a preferred embodiment, hinge 16 may be loaded by a spring to be biased towards the closed position. Thus, the device 1 has to be actively opened by a user, but will close by means of the spring, if the cover 7 is not held in the open position by the user.

[0052] In other embodiments, other means for biasing hinge 16 towards the closed position may be provided, such as the use of gravitational force. In yet other embodiments, hinge 16 may not be biased towards the closed position, such that a user has to actively bring cover 7 into the closed position by rotating cover 7 around hinge 16 in rotational direction 8.

[0053] Via a second hinge 17 which is spaced from the first hinge 16, a first end of a lever 13 is rotatably connected to the rotation element 19. A second end of lever 13 is rotatably connected to the backside of tray 5 by means of a third hinge 18. Thus, during rotation of cover 7 in rotational direction 8, lever 13 is pushed towards the center of the device, thereby pushing the tray into the same direction.

[0054] The aerosol generation chamber 15 comprises one or more heating elements 10 configured to heat and generate aerosol from a substrate 11. The heating elements are preferably electric heating elements, such as resistive heating elements, but any type of heating element suitable for supplying heat to the aerosol generation chamber 15 may be used. The heating element 10 preferably has a substantially flat configuration but may have different shapes in some embodiments.

[0055] The heating element 10 may be powered by an electrical power source such as a removable battery, a rechargeable battery or the like. The electrical circuitry needed for powering the heating element is known to the skilled person and is therefore not discussed here.

[0056] As illustrated in Fig. 4, in some embodiments the tray 5 has L-shaped configuration with a long leg 21 and a short leg 22. The short leg 22 is configured to be placed underneath a substrate 11 to prevent the substrate from sliding downwards due to gravitational force. The long leg is configured to be put in contact with a flat surface of substrate 11 to control the substrate's position relative to the heating element 10. In some embodiments, the long leg 21 may comprise a protrusion 6 configured to lock onto a respective recess 23 in a substrate 11. In some embodiments, a flexible substrate may be used, such that when pressure is applied to the substrate 11 by means of the long leg 21 of the L-shaped tray 5, a recess 23 is formed in the substrate 11 by stamping. This fixing ensures that the substrate 11 is held in the correct position with respect to the heating element 10, and also ensures that during movement from the closed position to the open position, the substrate is lifted back up with the tray. This is especially important for possible embodiments which do not comprise an L-shaped tray 5.

[0057] As cover 7 is rotated in rotational direction 8,

the rotation of rotational element 19 is translated in a translational movement of tray 5 towards the center of the device 1 by means of the spaced hinges 16 and 17. As tray 5 translated towards the center of device 1, it approaches slanted wall 12. Said slanted wall 12 causes the tray 5 moving in a longitudinal direction of the housing 2 to also move in a direction substantially perpendicular to the longitudinal direction of the housing 2 and towards heating element 10. Once the cover is in closed position, the tray is brought in a position very close to heating element 10, such that substrate 11 is brought in contact with and may be pressed towards said heating element 10.

[0058] Fig. 5 illustrates the aerosol generation device 1 in a state ready to generate aerosol, where the cover 7 is in the closed position, and the substrate 11 is inside the aerosol generation chamber 15. The substrate herein is heated by heating element 10 and an aerosol can be generated. The aerosol may then be provided to a user through mouthpiece 3.

[0059] Fig. 6 depicts the aerosol generation device 1 with the cover 7 in the open position. After consuming of the aerosol by the user, said user may bring cover 7 back into the open position by rotation in opposite rotational direction 28. Rotational element 19 again translates the rotation into a translation and causes the tray to be lifted from the aerosol generation chamber. By means of the short leg 22 of the L-shaped tray 5 and/or the protrusion 6 of the tray and the recess 23 in the substrate 11, the substrate 11 is lifted out of the aerosol generation chamber 15 together with the tray. From there, substrate 11 may be removed by the hand of a user and may be replaced by an unused substrate.

List of reference signs:

[0060]

1	Aerosol generation device
2	Housing
3	Mouthpiece
5	Tray
6	Protrusion
7	Cover
8	Rotational direction
10	Heating element
11	Substrate
12	Slanted wall
13	Lever
15	Aerosol generation chamber
16	First hinge
17	Second hinge
18	Third hinge
19	Rotation element
21	Long leg
22	Short leg
23	Recess
28	Opposite rotational direction

Claims

1. An aerosol generation device (1) comprising:

an aerosol generation chamber (15) configured to receive and heat a substrate (11) to generate aerosol, the aerosol generation chamber (15) comprising at least a heating element (10);
 an oblong housing (2);
 a cover (7) which can be in a closed position covering the aerosol generation chamber (15) and in an open position exposing the aerosol generation chamber (15); and
 a tray (5) configured to receive and hold the substrate (11), the tray (5) being connected to the cover (7);
 wherein when the cover (7) is in the open position, the tray (5) can receive the substrate (11), and the received substrate (11) is located at least partly outside of the aerosol generation chamber (15), and when the cover (7) is in the closed position, a received substrate (11) is fully contained in the aerosol generation chamber (15) and in contact with the heating element (10); and
 wherein the cover (7) can be moved from the open position to the closed position by rotation, whereby the tray (5) is translated in a longitudinal direction of the housing (2) and towards the heating element (10) and in a direction substantially perpendicular to the longitudinal direction of the housing (2) such that a substrate (11) held by the tray (5) is put in contact with the heating element (10).

2. The aerosol generation device (1) according to claim 1, wherein the tray (5) comprises means for fixing the substrate (11) to the tray (5).

3. The aerosol generation device (1) according to claim 2, wherein the means for fixing are one or more protrusions (6) which can engage with respective recesses of the substrate (11).

4. The aerosol generation device (1) according to claim 3, wherein the recesses can be formed by stamping the substrate (11) with the one or more protrusions (6).

5. The aerosol generation device (1) according to any one of the preceding claims, wherein the movement of the tray (5) in the direction substantially perpendicular to the longitudinal direction of the housing (2) is caused by a slanted wall (12) of the aerosol generation chamber.

6. The aerosol generation device (1) according to any one of the preceding claims, wherein a cross-section

of the tray (5) has a generally L-shaped configuration, the long leg (21) of the L-shape being oriented substantially parallel to the longitudinal direction of the housing (2), and the short leg (22) extending from the long leg (21) towards the heating element (10).

7. The aerosol generation device (1) according to any one of the preceding claims, wherein the cover (7) is connected to the housing (2) by means of a hinge which allows for the rotation of the cover.

8. The aerosol generation device (1) according to any one of the preceding claims, wherein the cover (7) is biased towards the closed position by means of a spring.

9. The aerosol generation device (1) according to any one of the preceding claims, wherein the tray (5) is connected to the cover (7) such that the rotation of the cover (7) around the hinge results in the translation of the tray (5).

10. The aerosol generation device (1) according to claim 9, wherein the connection between the tray (5) and the cover (7) is realized by means of a second hinge, the second hinge being distanced from the hinge which allows for the rotation of the cover.

11. The aerosol generation device (1) according to any one of claims 8 to 10, wherein the rotation of the cover (7) is translated into the translation of the tray (5) by means of a lever (13).

12. The aerosol generation device (1) according to any one of the preceding claims, wherein the tray (5) moves towards the center of the housing (2) along the longitudinal direction of the housing (2) as the cover (7) moves from the open position to the closed position, and in the opposite direction as the cover (7) moves from the closed position to the open position.

13. The aerosol generation device (1) according to any one of the preceding claims, wherein the substrate (11) is moved away from the center of the housing (2) along the longitudinal direction of the housing (2) by means of the short leg (22) when the cover (7) moves from the closed position to the open position.

14. The aerosol generation device (1) according to any one of the preceding claims, wherein the substrate (11) is moved away from the center of the housing (2) along the longitudinal direction of the housing (2) by means of the means for fixing the substrate (11) to the tray (5).

15. The aerosol generation device (1) according to claim 14, wherein the substrate (11) has an upper surface

and a lower surface, and in the closed position of the cover (7) the lower surface is in contact with the long leg (21) of the tray (5), and the upper surface is in contact with the heating element (10).

Patentansprüche

1. Aerosolerzeugungsvorrichtung (1), umfassend:

eine Aerosolerzeugungskammer (15), die konfiguriert ist, um ein Substrat (11) aufzunehmen und zu erwärmen, um Aerosol zu erzeugen, wobei die Aerosolerzeugungskammer (15) mindestens ein Heizelement (10) umfasst;
ein oblonges Gehäuse (2);
eine Abdeckung (7), die sich in einer geschlossenen Position, die die Aerosolerzeugungskammer (15) abdeckt, und in einer offenen Position, die die Aerosolerzeugungskammer (15) freilegt, befinden kann; und
eine Schale (5), die konfiguriert ist, um das Substrat (11) aufzunehmen und zu halten, wobei die Schale (5) mit der Abdeckung (7) verbunden ist; wobei, wenn sich die Abdeckung (7) in der offenen Position befindet, die Schale (5) das Substrat (11) aufnehmen kann und sich das aufgenommene Substrat (11) mindestens teilweise außerhalb der Aerosolerzeugungskammer (15) befindet, und wenn sich die Abdeckung (7) in der geschlossenen Position befindet, ein aufgenommenes Substrat (11) vollständig in der Aerosolerzeugungskammer (15) und in Kontakt mit dem Heizelement (10) enthalten ist; und wobei die Abdeckung (7) durch Drehung aus der offenen Position in die geschlossene Position bewegt werden kann, wodurch die Schale (5) in einer Längsrichtung des Gehäuses (2) und in Richtung des Heizelements (10) und in einer Richtung im Wesentlichen senkrecht zur Längsrichtung des Gehäuses (2) verschoben wird, so dass ein Substrat (11), das von der Schale (5) gehalten wird, in Kontakt mit dem Heizelement (10) gebracht wird.

2. Aerosolerzeugungsvorrichtung nach Anspruch 1, wobei die Schale (5) Mittel zum Befestigen des Substrats (11) an der Schale (5) umfasst.

3. Aerosolerzeugungsvorrichtung (1) nach Anspruch 2, wobei das Mittel zum Befestigen ein oder mehrere Vorsprünge (6) ist, das in jeweilige Aussparungen des Substrats (11) eingreifen kann.

4. Aerosolerzeugungsvorrichtung (1) nach Anspruch 3, wobei die Aussparungen durch Stanzen des Substrats (11) mit dem einen oder den mehreren Vorsprüngen (6) gebildet werden können.

5. Aerosolerzeugungsvorrichtung (1) nach einem der vorhergehenden Ansprüche, wobei das Bewegen der Schale (5) in der Richtung im Wesentlichen senkrecht zur Längsrichtung des Gehäuses (2) durch eine schräge Wand (12) der Aerosolerzeugungskammer verursacht wird.

6. Aerosolerzeugungsvorrichtung (1) nach einem der vorhergehenden Ansprüche, wobei ein Querschnitt der Schale (5) eine im Allgemeinen L-förmige Konfiguration aufweist, wobei der lange Schenkel (21) der L-Form im Wesentlichen parallel zur Längsrichtung des Gehäuses (2) ausgerichtet ist und sich der kurze Schenkel (22) vom langen Schenkel (21) in Richtung des Heizelements (10) erstreckt.

7. Aerosolerzeugungsvorrichtung (1) nach einem der vorhergehenden Ansprüche, wobei die Abdeckung (7) mittels eines Scharniers, das die Drehung der Abdeckung ermöglicht, mit dem Gehäuse (2) verbunden ist.

8. Aerosolerzeugungsvorrichtung (1) nach einem der vorhergehenden Ansprüche, wobei die Abdeckung (7) mittels einer Feder in Richtung der geschlossenen Position vorgespannt ist.

9. Aerosolerzeugungsvorrichtung (1) nach einem der vorhergehenden Ansprüche, wobei die Schale (5) derart mit der Abdeckung (7) verbunden ist, dass die Drehung der Abdeckung (7) um das Scharnier zur Translation der Schale (5) führt.

10. Aerosolerzeugungsvorrichtung (1) nach Anspruch 9, wobei die Verbindung zwischen der Schale (5) und der Abdeckung (7) mittels eines zweiten Scharniers realisiert ist, wobei das zweite Scharnier von dem Scharnier, das die Drehung der Abdeckung ermöglicht, beabstandet ist.

11. Aerosolerzeugungsvorrichtung (1) nach einem der Ansprüche 8 bis 10, wobei die Drehung der Abdeckung (7) mittels eines Hebels (13) in die Translation der Schale (5) übersetzt wird.

12. Aerosolerzeugungsvorrichtung (1) nach einem der vorhergehenden Ansprüche, wobei sich die Schale (5) in Richtung der Mitte des Gehäuses (2) entlang der Längsrichtung des Gehäuses (2) bewegt, wenn sich die Abdeckung (7) aus der offenen Position in die geschlossene Position bewegt, und in die entgegengesetzte Richtung, wenn sich die Abdeckung (7) aus der geschlossenen Position in die offene Position bewegt.

13. Aerosolerzeugungsvorrichtung (1) nach einem der vorhergehenden Ansprüche, wobei das Substrat (11) mittels des kurzen Schenkels (22) von der Mitte

des Gehäuses (2) entlang der Längsrichtung des Gehäuses (2) wegbewegt wird, wenn sich die Abdeckung (7) aus der geschlossenen Position in die offene Position bewegt.

14. Aerosolerzeugungsvorrichtung (1) nach einem der vorhergehenden Ansprüche, wobei das Substrat (11) mittels des Mittels zum Befestigen des Substrats (11) an der Schale (5) von der Mitte des Gehäuses (2) entlang der Längsrichtung des Gehäuses (2) wegbewegt wird.

15. Aerosolerzeugungsvorrichtung (1) nach Anspruch 14, wobei das Substrat (11) eine obere Oberfläche und eine untere Oberfläche aufweist und in der geschlossenen Position der Abdeckung (7) die untere Oberfläche in Kontakt mit dem langen Schenkel (21) der Schale (5) steht und die obere Oberfläche in Kontakt mit dem Heizelement (10) steht.

Revendications

1. Un dispositif de génération d'aérosol (1) comprenant :

une chambre de génération d'aérosol (15) configurée pour recevoir et chauffer un substrat (11) pour générer un aérosol, la chambre de génération d'aérosol (15) comprenant au moins un élément chauffant (10) ;

un boîtier oblong (2) ;

un capuchon (7) qui peut être en une position fermée recouvrant la chambre de génération d'aérosol (15) et en une position ouverte exposant la chambre de génération d'aérosol (15) ; et un plateau (5) configuré pour recevoir et maintenir le substrat (11), le plateau (5) étant relié au capuchon (7) ;

dans lequel, lorsque le capuchon (7) est dans la position ouverte, le plateau (5) peut recevoir le substrat (11) et le substrat reçu (11) est au moins partiellement situé en dehors de la chambre de génération d'aérosol (15) et, lorsque le capuchon (7) est dans la position fermée, un substrat reçu (11) est entièrement enfermé dans la chambre de génération d'aérosol (15) et en contact avec l'élément chauffant (10) ; et

dans lequel le capuchon (7) peut être déplacé de la position ouverte à la position fermée par rotation, de sorte que le plateau (5) soit translaté dans une direction longitudinale du boîtier (2) en allant vers l'élément chauffant (10), et dans une direction sensiblement perpendiculaire à la direction longitudinale du boîtier (2) de manière qu'un substrat (11) maintenu par le plateau (5) soit mis en contact avec l'élément chauffant (10).

2. Le dispositif de génération d'aérosol (1) selon la revendication 1, dans lequel le plateau (5) comprend des moyens de fixation du substrat (11) au plateau (5).

3. Le dispositif de génération d'aérosol (1) selon la revendication 2, dans lequel les moyens de fixation sont un ou plusieurs reliefs (6) qui peuvent venir en prise avec des creux respectifs du substrat (11).

4. Le dispositif de génération d'aérosol (1) selon la revendication 3, dans lequel les creux peuvent être formés par estampage du substrat (11) par les un ou plusieurs reliefs (6).

5. Le dispositif de génération d'aérosol (1) selon l'une des revendications précédentes, dans lequel le déplacement du plateau (5) dans la direction sensiblement perpendiculaire à la direction longitudinale du boîtier (2) est produit par une paroi inclinée (11) de la chambre de génération d'aérosol.

6. Le dispositif de génération d'aérosol (1) selon l'une des revendications précédentes, dans lequel une section droite du plateau (5) présente une configuration globalement en forme de L, la grande branche du L de la forme en L étant orientée sensiblement parallèlement à la direction longitudinale du boîtier (2), et la branche courte (22) s'étendant à partir de la branche longue (21) en direction de l'élément chauffant (10).

7. Le dispositif de génération d'aérosol (1) selon l'une des revendications précédentes, dans lequel le capuchon (7) est relié au boîtier (2) au moyen d'une charnière qui permet la rotation du capuchon.

8. Le dispositif de génération d'aérosol (1) selon l'une des revendications précédentes, dans lequel le capuchon (7) est sollicité vers la position fermée au moyen d'un ressort.

9. Le dispositif de génération d'aérosol (1) selon l'une des revendications précédentes, dans lequel le plateau (5) est relié au capuchon (7) de telle manière que la rotation du capuchon (7) autour de la charnière produise la translation du plateau (5).

10. Le dispositif de génération d'aérosol (1) selon la revendication 9, dans lequel la liaison entre le plateau (5) et le capuchon (7) est réalisée au moyen d'une seconde charnière, la seconde charnière étant mise à distance de la charnière qui permet la rotation du capuchon.

11. Le dispositif de génération d'aérosol (1) selon l'une des revendications 8 à 10, dans lequel la rotation du capuchon (7) est translatée dans la translation du

plateau (5) au moyen d'un levier (13).

12. Le dispositif de génération d'aérosol (1) selon l'une des revendications précédentes, dans lequel le plateau (5) se déplace en direction du centre du boîtier (2) le long de la direction longitudinale du boîtier (2) lorsque le capuchon (7) se déplace de la position ouverte à la position fermée, et dans le sens opposé lorsque le capuchon (7) se déplace de la position fermée à la position ouverte. 5 10
13. Le dispositif de génération d'aérosol (1) selon l'une des revendications précédentes, dans lequel le substrat (11) est déplacé en éloignement du centre du boîtier (2) le long de la direction longitudinale du boîtier au moyen de la branche courte (22) lorsque le capuchon (7) se déplace de la position fermée à la position ouverte. 15
14. Le dispositif de génération d'aérosol (1) selon l'une des revendications précédentes, dans lequel le substrat (11) est déplacé en éloignement du centre du boîtier (2) le long de la direction longitudinale du boîtier (2) au moyen des moyens de fixation du substrat (11) au plateau (5). 20 25
15. Le dispositif de génération d'aérosol (1) selon la revendication 14, dans lequel le substrat (11) possède une surface supérieure et une surface inférieure, et dans la position fermée du capuchon (7) la surface inférieure est en contact avec la grande branche (21) du plateau (5) et la surface supérieure est en contact avec l'élément chauffant (10). 30

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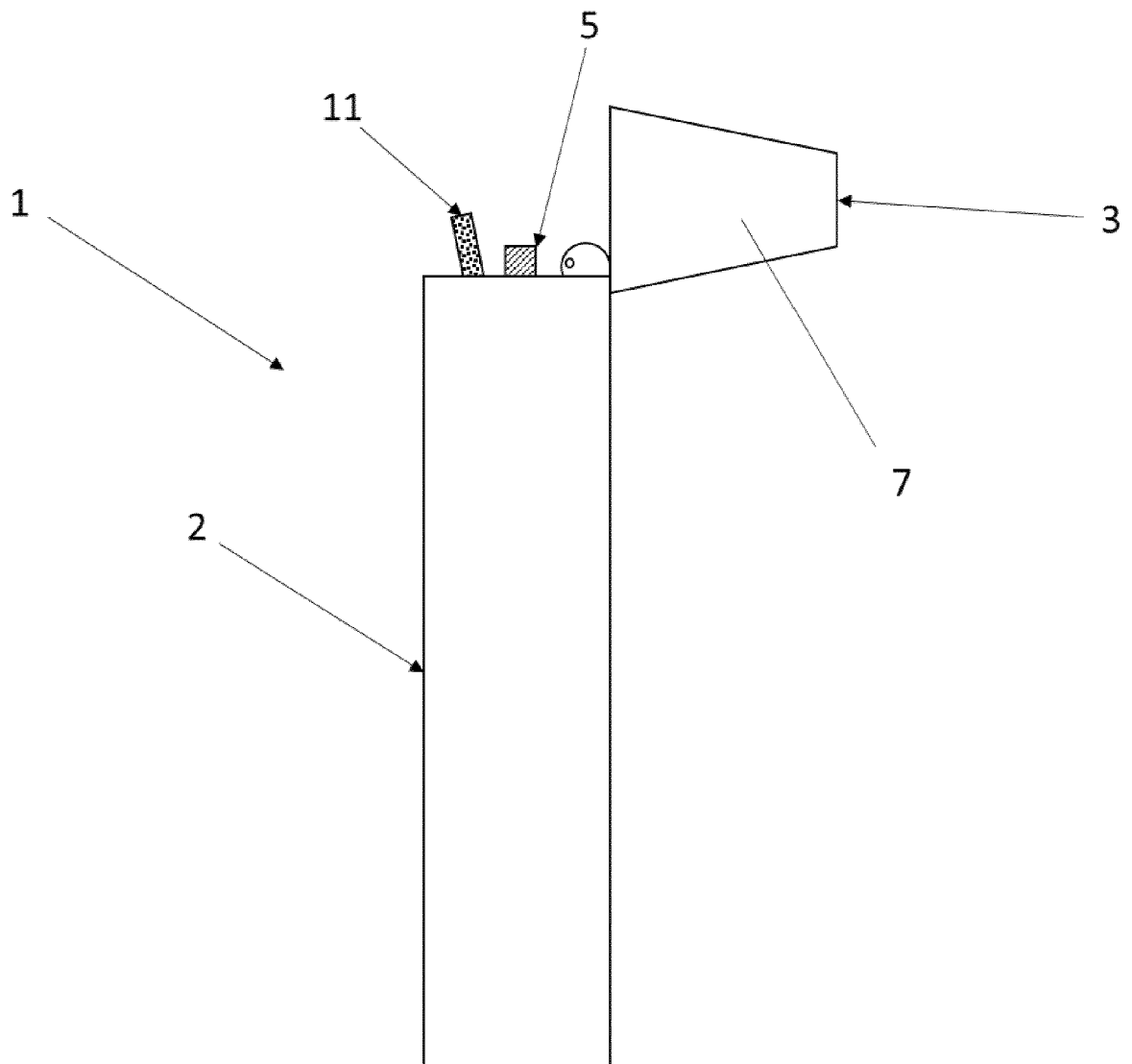


Figure 1

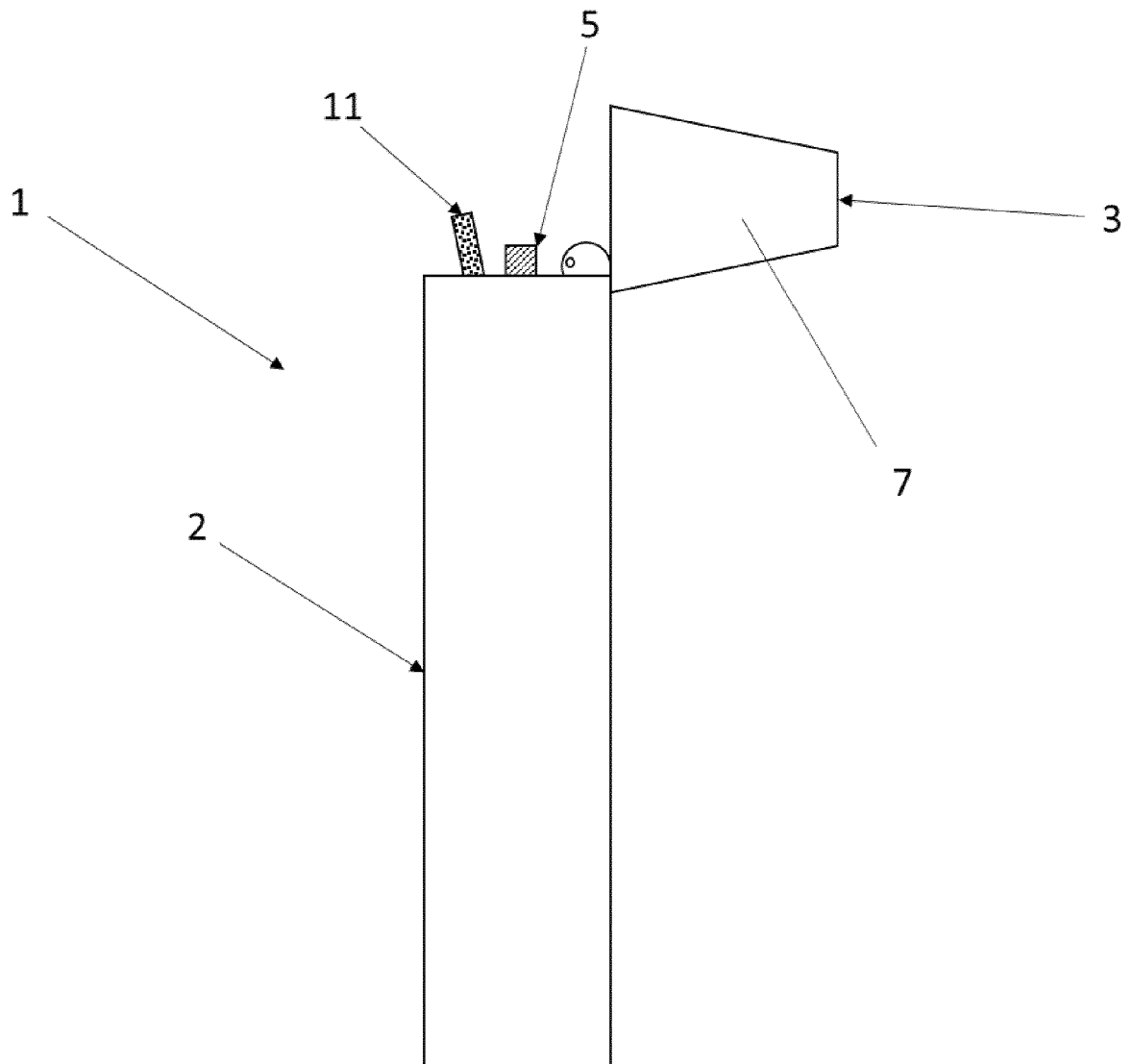


Figure 2

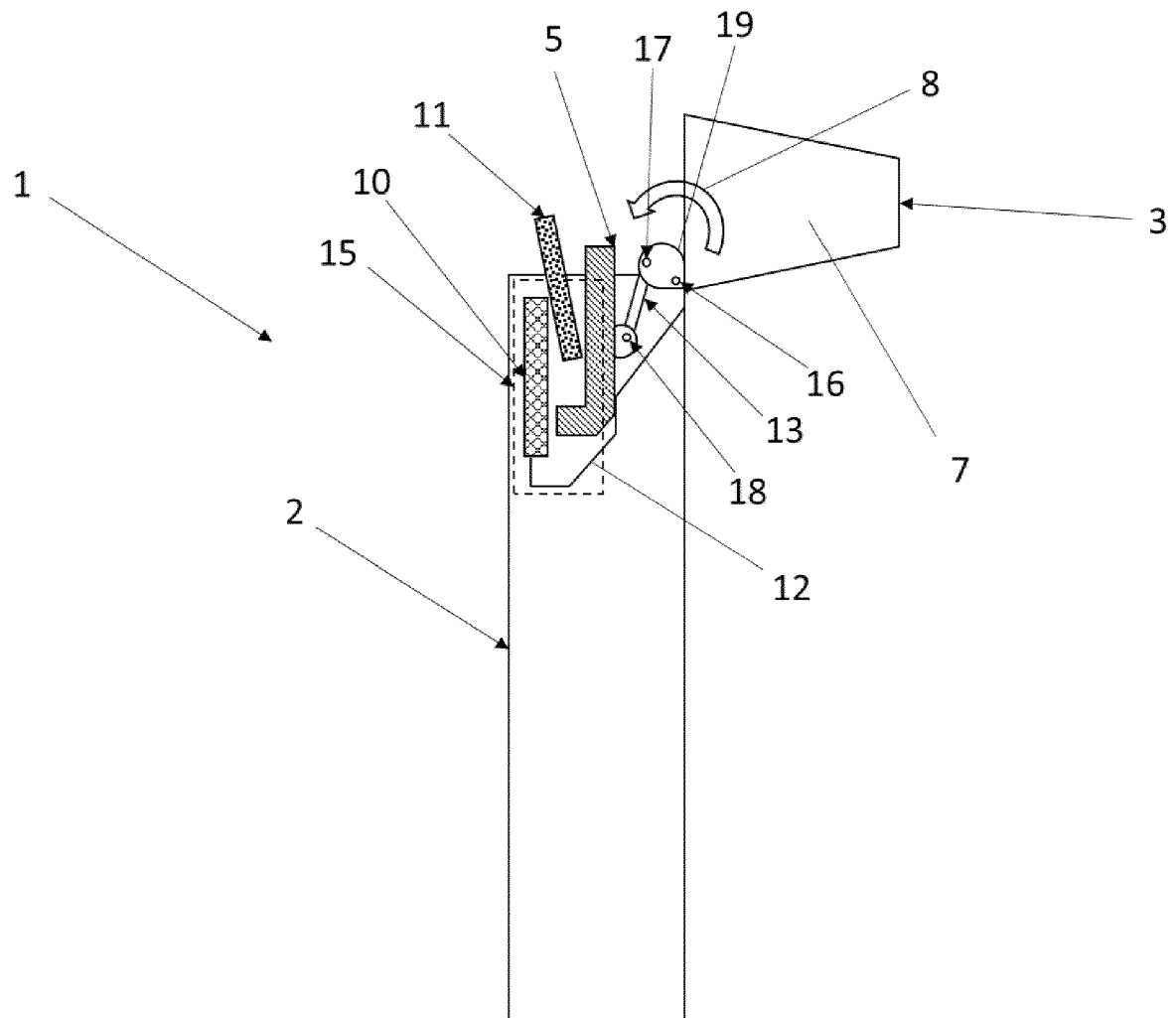


Figure 3

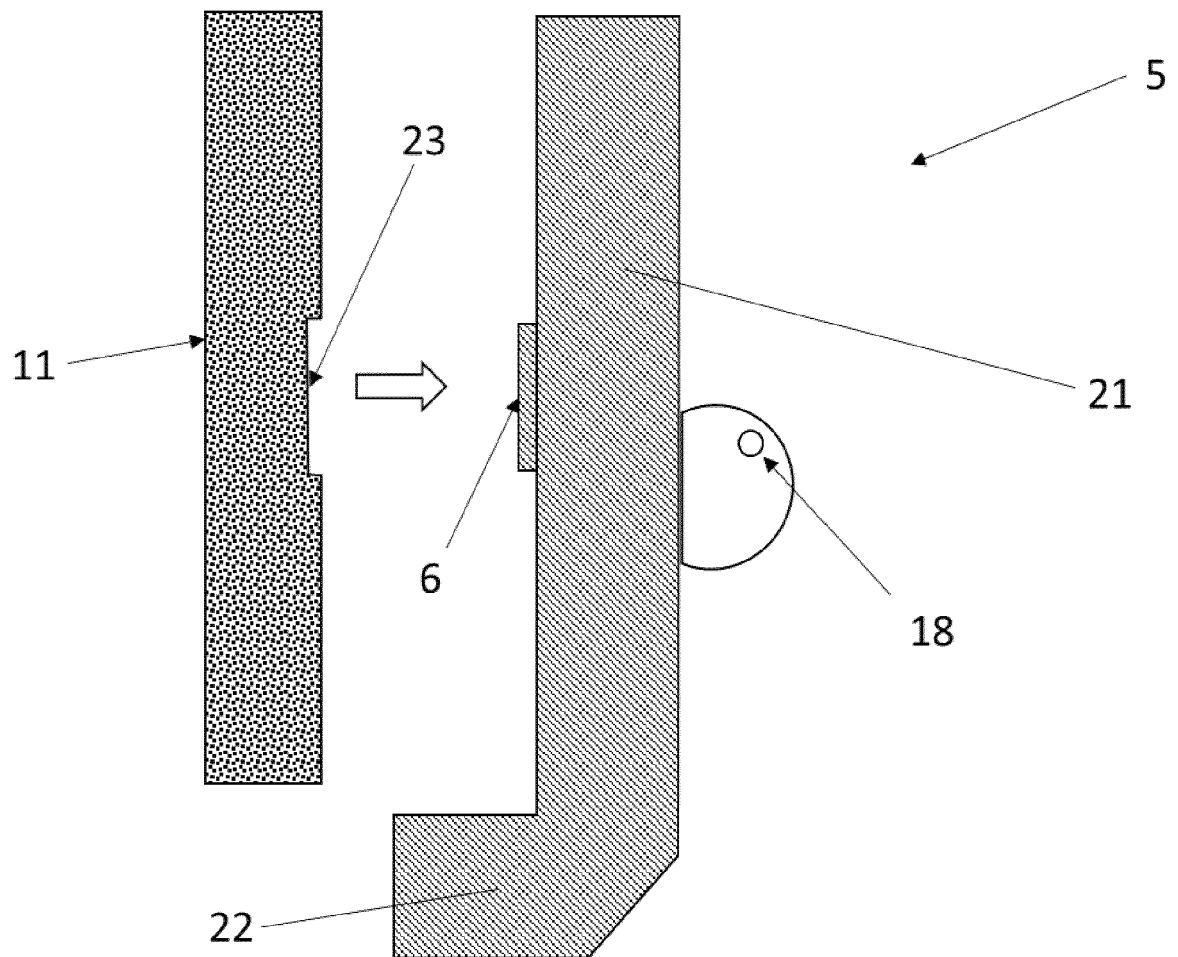


Figure 4

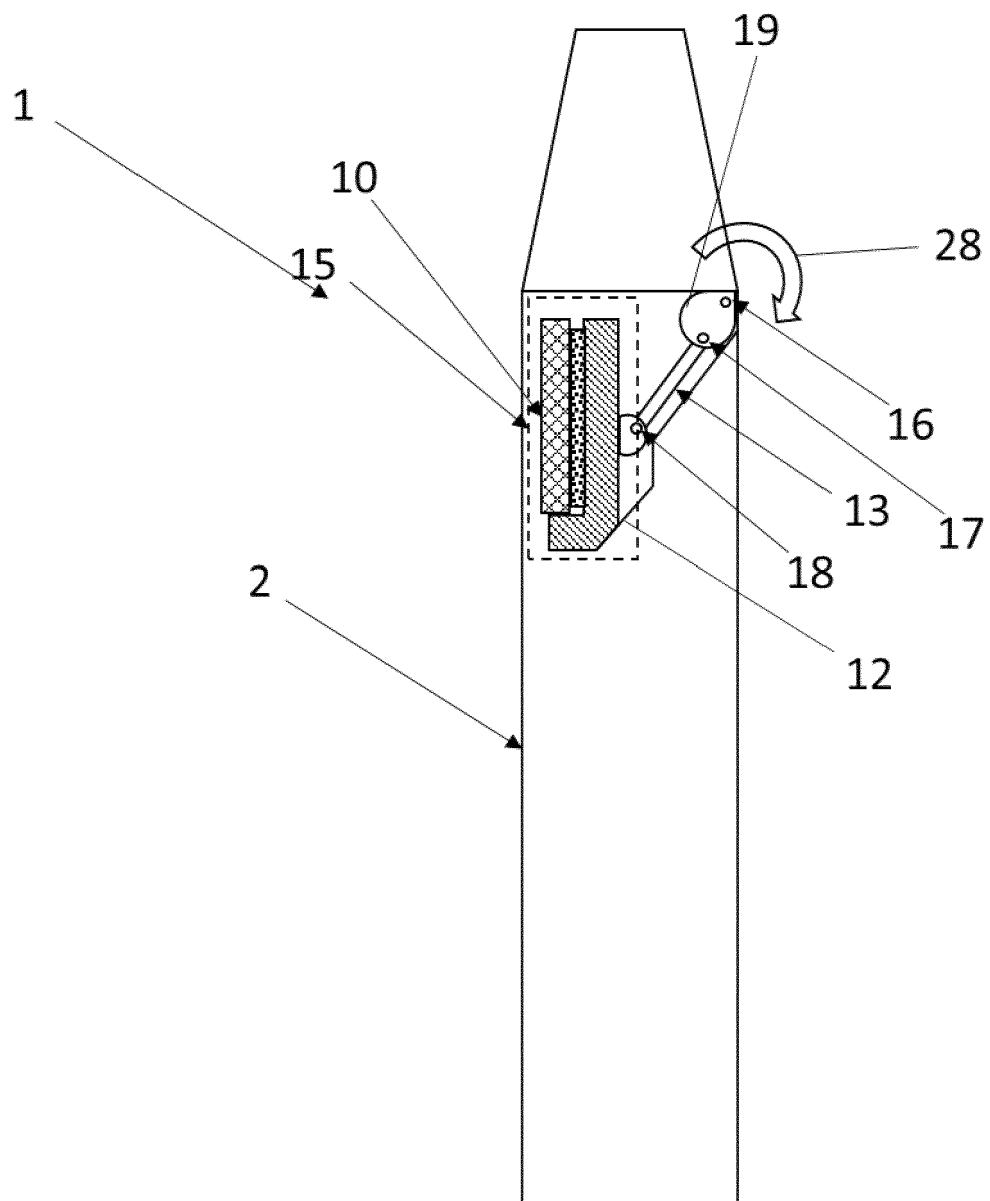


Figure 5

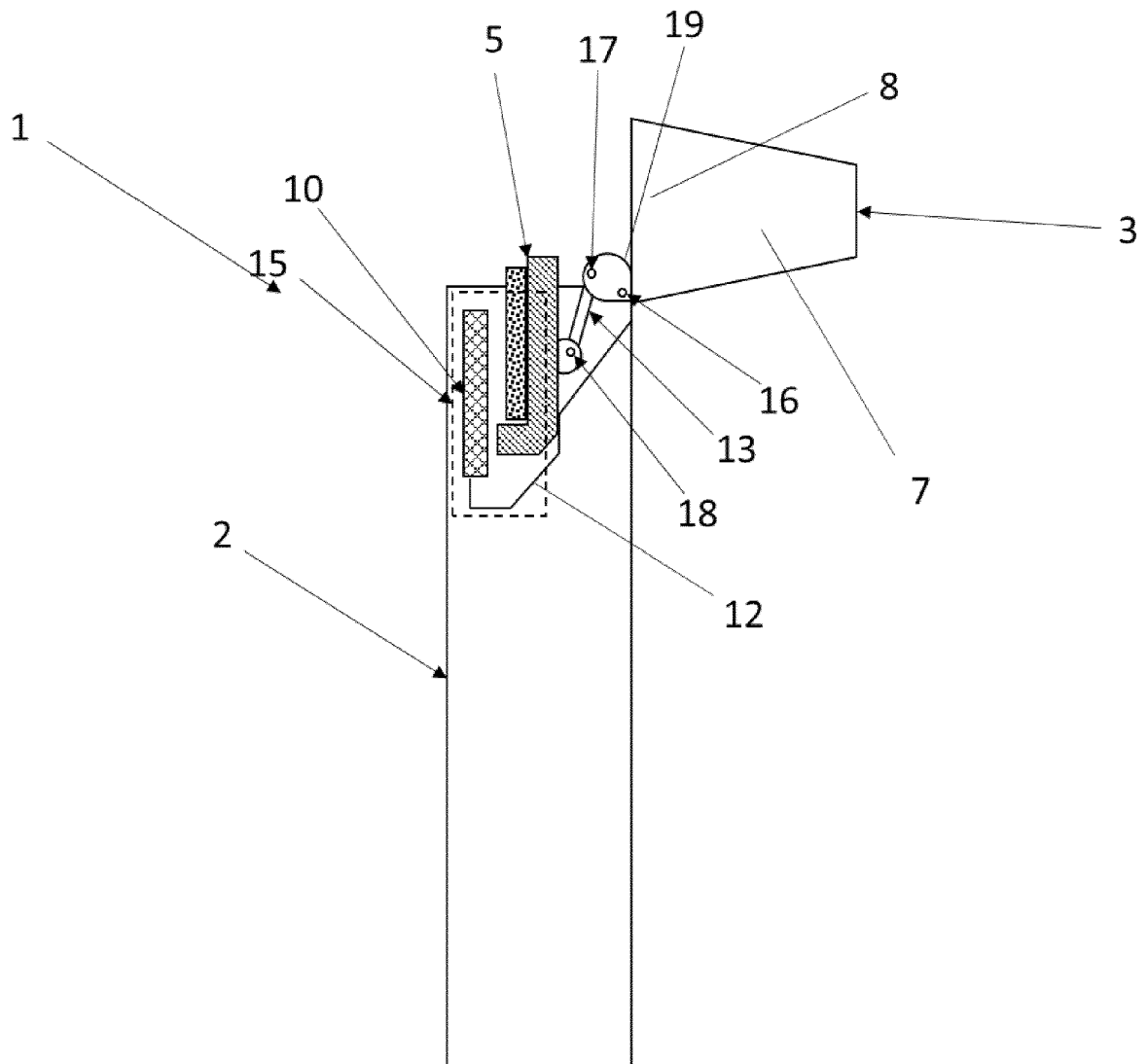


Figure 6

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 2014060554 A1 [0003]