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(54) **VAPORISER**

(57) A personal vaporiser device is described, the device an upper portion with a mouthpiece having a vapor outlet for inhalation of a vapourised medium and a storage housing. The storage housing comprising a storage divider for retaining at least two e-liquid cartridges in position relative to the mouthpiece. The e-liquid cartridges comprise a vaporiser medium, a heating element for vaporising the vaporiser medium an electrode for providing an electrical pathway to the heating element and an outlet coupled to the mouthpiece through which the vaporised medium can be sucked. A lower portion of the device is rotationally coupled to the upper portion and comprises

an electrode contact configured to engage with an electrode of a single retained e-liquid cartridge and a battery electrically coupled to the electrode contact for supplying power to the heating elements. The upper portion is rotatable into a selected predefined rotational position relative to the lower portion to align the electrode contact to an electrode such that activation of the battery vaporises any vaporiser medium in a single retained e-liquid cartridge and the mouthpiece is removable to allow loading and unloading of e-liquid cartridges into the storage divider.

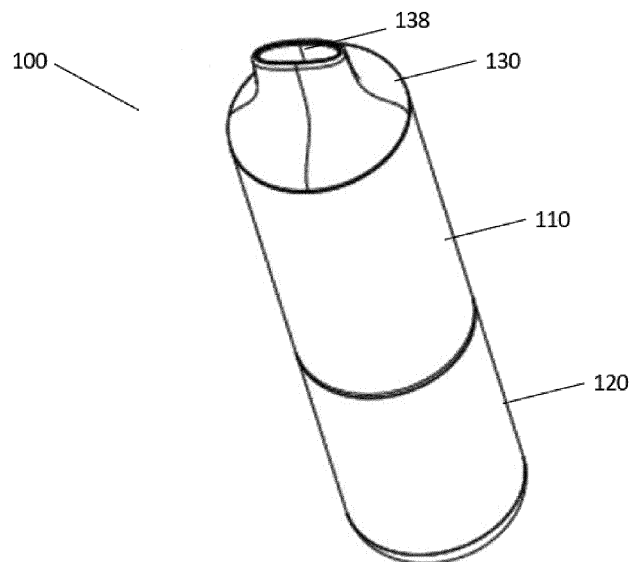


Figure 1

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Description

Field of Invention

[0001] The present invention relates to personal vaporisers, in particular to a personal vaporiser having capacity for storing multiple vaporising medium cartridges.

Background of the Invention

[0002] Personal vaporisers, sometimes called e-cigarettes or vapes, are handheld devices that atomize a vaporising medium held in tanks or pods, typically mixed with air so as to form a vapor that is then inhaled by its user. The tank or pod contains the vaporising medium (sometimes called an e-liquid) and is typically an essential oil-based fluid or wax, nicotine, flavourings, concentrated cannabidiol, or the like.

[0003] In use, a user typically activates a switch to connect a battery to a heating element. The heating element acts to warm the vaporising medium, which causes it to vaporise. The vaporised medium can then be inhaled by the user. The heating element may be arranged to activate when the device detects the user pressing the device to their lips.

[0004] As noted above, some personal vaporisers utilise a refillable tank into which the e-liquid is poured. An atomiser with the heating element can be disposed below or near the bottom of the tank, and a vapor path extends through or to a side of the tank to deliver vapor from the atomiser to a mouthpiece positioned atop, or proximal of, the tank. However, such devices tend to be difficult to fill and prone to leaking. Additionally, there can be regulatory issues due to the amount of e-liquid contained within such devices.

[0005] Accordingly, some devices comprise sealed disposable devices that are intended for disposal after use. Other devices accommodate a replaceable vape pod or cartridge. Such vape pods typically comprise the heating element and the e-liquid but are a sealed unit.

[0006] A recent device, as shown in CN115053990A, comprises a disposable device that has 4 separate sealed tanks, each having their own heating element that is activated and powered by a single battery. In use, the user can rotate the upper portion of the device comprising the mouthpiece to electrically couple the battery to a heating element of a tank to select that tank and vaporize the e-liquid therein. However, the device relies on a central rotation axis and magnets to hold the upper and lower portions of the device together. The electrodes used to electrically couple the tanks are also exposed providing a risk of multiple tanks being electrically activated simultaneously. Additionally, given the disposable nature of the device it becomes cumbersome to use and carry when one or more of the flavoured e-liquids have run out and the device mainly has empty tanks.

[0007] The present invention aims to at least ameliorate the above mentioned issues.

Summary of the Invention

[0008] According to a first aspect of the present invention there is provided a personal vaporiser device for inhaling vaping products. The device comprises an upper portion and a lower portion.

[0009] The upper portion comprises a mouthpiece having a vapor outlet for inhalation of a vapourised medium. The mouthpiece may be tapered to aid comfort for the user during suction, but is typically shaped similar to a mouthpiece of a woodwind instrument. The mouthpiece generally has a vapor outlet.

[0010] The upper portion comprises a storage housing. The storage housing comprises a storage divider for retaining at least two e-liquid cartridges in position relative to the mouthpiece. The storage divider may be a shaped divider, or may be a housing or the like. In an embodiment, the storage divider divides the storage housing into equal sized cartridge chambers. The storage divider may run along then length of the storage housing. Typically four e-liquid cartridges can be accommodated within the storage housing, each located in position by the storage divider. The storage divider acts to retain the e-liquid cartridges in a predetermined orientation within the storage housing. In other words, the cartridges are received within the storage chamber within the appropriately sized cartridge chambers. It can be appreciated that then cartridges may be shaped to match the cartridge chambers. This can ensure that the cartridges are only able to be loaded into the device in one orientation.

[0011] The e-liquid cartridges generally comprise a vaporiser medium, a heating element for vaporising the vaporiser medium, an electrode for electrically coupling the heating element, and an outlet coupled to the mouthpiece through which the vaporised medium can be sucked. The cartridges are filled independently such that the personal vaporiser is totally removed from then filling process. In this manner the cartridges are sealed to protect the vaporiser medium from external environmental variables. It can be appreciated that a user may select e-liquid cartridges that have different characteristics, such as flavourings. Alternatively the user may choose to have similar or the same flavours and utilise the storage housing as a means for storing spare cartridges rather than having to carry these separately.

[0012] The upper housing comprises at least two electrodes, each electrode for providing an electrical pathway to one of the retained e-liquid cartridges. In this way the electrode is aligned with and a configured to form an electrical pathway with any single loaded e-liquid cartridge.

[0013] The device comprises a lower portion, rotationally coupled to the upper portion. The lower portion comprises an electrode contact configured to engage with a single electrode in the upper portion to form an electrical pathway with a single loaded e-liquid cartridge during use. The lower portion further comprises a battery electrically coupled to the electrode contact for supplying power to the heating elements of a loaded e-liquid car-

tridge during use and via the electrical pathway through the electrode contact and electrode of the single e-liquid cartridge.

[0014] The upper portion is rotatable into a selected predefined rotational position relative to the lower portion to align the electrode contact to a single electrode. Accordingly, activation of the battery vaporises any vapouriser medium in a single retained e-liquid cartridge due to the alignment defined above. It can be appreciated that although defined in relation to the upper portion rotating relative to the lower portion, said rotation is a relative rotation and a user may rotate the lower portion for similar effect.

[0015] Furthermore, the mouthpiece is removable to allow loading and unloading of e-liquid cartridges into the storage divider. As noted above, the storage divider allows for insertion of at least two e-liquid cartridges, whilst the pre-defined rotational position allows for a single e-liquid cartridge to be electrically coupled to the battery at any time. This arrangement ensures that only a single cartridge is activated at each time, which is an important regulatory consideration in some territories to ensure the device stays within defined limits of e-liquid able to be vaporised from a single device at any one time.

[0016] By providing for at least two cartridges to be stored within then storage housing at any time, a user has the choice to store two or more different flavour of e-liquid cartridges within the device even though only one can be used at any one time. Alternatively, a user may choose to store a spare cartridge of the same flavour.

[0017] It can also be appreciated that not all slots within the storage housing as defined by the storage divider need be used. For example, a user may use the device with a single loaded cartridge, with any remaining spaces within then storage housing left empty. This increases the versatility of the device.

[0018] In an embodiment, the upper portion and lower portion may be connected with a bracket. The bracket acts as a rotational bearing, providing defined components used to facilitate relative rotational between then upper portion and then lower portion.

[0019] In some embodiments the bracket may comprise retainers for securing the upper and lower portions into each predefined rotational position. Such retainers may take the form of raised nubs configured to engage with correspondingly shaped recesses to lock the upper and lower portions into position, preventing relative rotation.

[0020] Preferably, the bracket may comprise a spring strut. Said spring strut broadly comprises a spring secured about a fixing that secures the upper and lower portions. In use, the spring allows for a degree of lateral movement of the upper and lower portions sufficient to disengage the retainers and free the upper and lower portions for relative rotation. For example, where nubs and recesses are used, this allows the nubs to disengage and the user may then use the bracket as a bearing surface until engagement of the nubs with a recess corre-

sponding to the next desired predetermined rotational position.

[0021] Typically, the spring strut comprises a protrusion integrated with the bracket, and secured to the upper portion and the protrusion is received and secured within a rotation hole in the lower portion to couple the upper and lower portions.

[0022] As noted above, in embodiments, the spring strut may comprise a spring resiliently biased to pull the upper and lower portions together, and wherein movement of the upper portion away from and rotated relative to the lower portion disengages the retainers, allowing rotation into a new predefined rotational position.

[0023] The bracket may comprise a plate, said plate disposed adjacent to the electrodes of the e-liquid cartridges and comprising a cutaway aligned with the electrode contact. The use of such a plate ensures that only one electrode can be electrically coupled to the electrode contact at once. To ensure this, at least one blank is provided such that, in use, rotation of the upper portion relative to the lower portion into the selected predefined rotational position rotates the cutaway into alignment with a selected electrode of the e-liquid cartridge and the one or more blanks into alignment with any other electrodes of any other loaded e-liquid cartridges. The retainers moving into a secured position ensures that the plate is aligned in this manner by configuring the plate to be positioned according to the predetermined rotational position selected.

[0024] In other words, relative rotation of the upper and lower portions allows a user to select one of the predetermined rotational positions. Each rotational position corresponds to a position where one of the loaded e-liquid cartridges can be electrically activated to vaporise any contained vaporising material therein. Any loaded cartridge in an unselected rotational position is safely stored and unable to be activated. Similarly, a user may look through the device to determine which chamber in the storage portion is aligned with the electrode contact and choose to load a new cartridge into that chamber. This avoids the need to load more than one cartridge at once and/or to rotate the device to select the correct cartridge.

[0025] In embodiments the mouthpiece is push fit into the upper portion, said mouthpiece comprising a silicon gasket for forming a seal between then mouthpiece and the upper portion. A screw engagement, bayonet, or the like may be used.

[0026] The lower portion may comprise a pressure sensor, said pressure sensor configured to activate the battery when a pressure inside the device changes due to a user sucking on the mouthpiece.

[0027] The lower portion may comprise an airway hole for circulating air through the device and through the e-liquid cartridges.

[0028] The mouthpiece may comprise an upper section and a lower section, wherein the upper section comprises the vapor outlet and the lower section is configured

to retain the mouthpiece in the upper portion of the device. The upper section of the mouthpiece may be rotatably coupled to the lower section of the mouthpiece.

[0029] As previously discussed, the upper portion of the device retains at least two e-liquid cartridges. Providing a mouthpiece where the vapor outlet is rotatable to provide different positions of the outlet relative to the device housing advantageously allows a user to change which e-liquid cartridge is being drawn on without having to empty the device.

[0030] The upper section of the mouthpiece may be rotatably coupled to the lower section such that the upper section is rotatable into one or more selected predefined rotational positions relative to the lower section of the mouthpiece to substantially align the vapor outlet with a cartridge aligned beneath the mouthpiece. The predefined rotational positions allow a user to select which cartridge is being drawn on by aligning the vapor outlet with the desired cartridge. This rotation may also reduce the airflow through a cartridge not aligned with the vapor outlet, reducing the likelihood of different cartridges being mixed with a single draw of the vaporiser.

[0031] The mouthpiece may further comprise an intermediate layer configured to couple the upper and lower sections, wherein the intermediate layer comprises one or more apertures configured to substantially align with the vapor outlet when the upper section is in the one or more selected predefined rotational positions. The intermediate layer may act as a coupling layer.

[0032] The lower section may comprise one or more apertures configured to substantially align with the vapor outlet when the upper section is positioned in the one or more selected predefined rotational positions, such that airflow is substantially limited to the cartridge aligned with the vapor outlet in use. The one or more apertures in the lower section (and where present an intermediate layer) aligning with the vapor outlet may assist in defining the airflow through the mouthpiece.

[0033] The upper section of the mouthpiece may comprise two or more convex protrusions, and the intermediate layer of the mouthpiece may comprise two or more concave recesses. The concave recesses may be configured to retain the convex protrusions and provide tactile feedback to define the selectable rotational positions of the upper section of the mouthpiece. The tactile feedback advantageously allows a user to verify that the vapor outlet is in the desired position. The concave/convex arrangement advantageously provides a level of retention, without a user needing to pull apart the sections of the mouthpiece. Only a minor application of rotational force is required to displace the protrusions from the recess, in contrast with slots and lugs, for example.

[0034] Similar to the selection of positions with the device body, the described mechanism allows a user to select one of the predetermined rotational positions. Each rotational position corresponds to a position where one of the loaded e-liquid cartridges is aligned with the vapor outlet. Any loaded cartridge in an unselected rota-

tional position is covered and should not contaminate the airflow through the vapor outlet.

[0035] The device may further provide visual cues, so that a user can verify that the position of the vapor outlet matches that of the selected cartridge. Examples may include such as numerical labelling of each cartridge chamber, and/or indicator arrows on the lower portion in line with the electrode contact.

[0036] The lower section of the mouthpiece may comprise one or more retaining lugs configured to align with the storage divider and retain the cartridges in place relative to the mouthpiece. The retaining lugs advantageously may restrict the mouthpiece lower section rotating when a rotational force is applied to the upper section of the mouthpiece, reducing the risk of the vapor outlet being misaligned in use.

[0037] In a second aspect, there is provided a rechargeable personal vaporiser comprising an accessible housing for receiving at least two e-liquid cartridges; and selection means for selecting one loaded e-liquid cartridge for vaping.

[0038] These and other aspects of the invention will be apparent from, and elucidated with reference to, the embodiments described hereinafter.

Brief description of Drawings

[0039] Embodiments will be described, by way of example only, with reference to the drawing, in which:

Figure 1 shows a top perspective view of a personal vaporiser device according to the present invention; Figure 2 shows bottom perspective view of the personal vaporiser device of Figure 1;

Figure 3 shows a disassembled view of the upper portion and mouthpiece of the personal vaporiser of Figure 1;

Figure 4a shows a disassembled view of the personal vaporiser and shows a rear view of upper portion and Figure 4b shows a top view of the lower portion of the personal vaporiser of Figure 1;

Figure 5 shows a cross-sectional view of an assembled view of the featured portions of Figures 4a and 4b;

Figure 6 shows exploded views of a mouthpiece according to the present invention;

Figures 7a and 7b show additional views of sections of the mouthpiece of Figure 6; and

Figure 8 shows a cross-section view of an assembled view of a personal vaporiser device according to the present invention.

[0040] It should be noted that the Figure is diagrammatic and not drawn to scale. Relative dimensions and proportions of parts of the Figure have been shown exaggerated or reduced in size, for the sake of clarity and convenience in the drawings. The same reference signs are generally used to refer to corresponding or similar

feature in modified and different embodiments.

Detailed Description

[0041] Figure 1 shows a personal vaporiser device 100 for inhaling vaping products. The device 100 comprises an upper portion 110, a lower portion 120 and a mouthpiece 130. Broadly, in use, a user sucks on the mouthpiece 130, which activates a battery housed in the lower portion to vaporise a vapourising medium stored in an e-liquid cartridge within the device. The mouthpiece is shaped akin to the mouthpiece of a woodwind instrument and comprises an outlet 132 through which the vapor is sucked.

[0042] Figure 2 shows a perspective view of the lower part of the device. In particular, a micropressure device 122 that detects changes in pressure within the device caused by a user sucking on the mouthpiece 130. This micropressure device 122 activates the battery to activate the device as described above when the user sucking on the mouthpiece is detected.

[0043] Additionally shown is an airway hole 124 that allows air to enter the device. This allows circulation of air within the device and is used to vaporise the e-liquid contained within the e-liquid cartridges upon activation and vaping.

[0044] Figure 3 shows a view of the upper portion 110 with the mouthpiece 130 removed. The mouthpiece and the upper portion form a friction fit due to surface 132 of the mouthpiece that sits within the upper part of the upper portion 110. A silicon o-ring 136 aids the frictional engagement between the two elements.

[0045] As noted above, the mouthpiece broadly comprises a tapered flattened frustoconical shape 134 to aid comfort for the lips of a user. The mouthpiece 130 is intended to be removed to allow access to a storage portion 150 of the upper portion 110. The storage portion 150 receives two or more e-liquid cartridges 152. In the example shown in Figure 3, four cartridges 152 are used. A storage divider may be used to ensure that the cartridges are loaded in a predetermined orientation. It can be appreciated that whilst multiple cartridges are shown, with the storage portion full, fewer cartridges may be used, for example only one cartridge. In this case, the cartridge is retained in one of the predetermined positions by the storage divider.

[0046] Each predetermined position for loading the cartridge corresponds to an electrode configured to form an electrical pathway with heating elements or other such electrical heating devices within the cartridges 150. Shown are an outlet 156 for each cartridge. The cartridges comprise an e-liquid with vaporising medium, which can include nicotine, oils, and flavourings. The cartridges are filled independently and can be loaded into the storage portion 150 without exposing the user to the contents of the cartridges. The cartridges also have heating elements as described above, which may have corresponding contacts 154. The outlet 138 of the mouthpiece 130

is in fluid communication with the outlets 156 of the cartridges and so the orientation of the mouthpiece relative to the cartridges is not critical.

[0047] Figure 4a shows a rear view of the upper housing 110, separated from the lower portion 120. The upper housing comprises openings allowing electrodes 160 of loaded e-liquid cartridges, which in the example shown comprise an electrode pair. One such opening for the electrode pair 160 is provided for each predetermined orientation of the storage divider and is configured to receive an e-liquid cartridge and provide an electrical pathway to the electrodes 160 and thus electrical heating elements of one of the retained e-liquid cartridges. In this way the electrodes are aligned with a predetermined position within the storage housing and are configured to form an electrical pathway with any single loaded e-liquid cartridge.

[0048] A bracket 170 is provided and comprises a plate 172 located within a recess in the lower end of the upper portion 110. The plate is disposed adjacent to the electrodes 160 of the storage portion 150 and comprising a single cutaway 174 for allowing access to one of the electrodes 160 of the e-liquid cartridge disposed within the storage portion. Other electrodes of e-liquid cartridges stored within the storage portion 150 are hidden behind the plate, such as using a blank or the like. Also shown are recesses 176 that are within the recess. A corresponding cutout 178 provides access through the plate 172 to the recess. The recess 176 may be provided between the pair of electrodes 160 of a loaded cartridge such that the cutout 178 allows access, whilst blanks adjacent to the cutout prevent access to other electrodes.

[0049] Figure 4b shows an upper section of the lower portion 120. The lower portion comprises an electrode contact 180 configured to engage with a single electrode (i.e. electrode pair 160) of an e-liquid cartridge loaded in the upper portion 110 to form an electrical pathway with a single loaded e-liquid cartridge during use.

[0050] The lower portion 120 is friction fit and keyed to the upper portion via ridges 182. Within a recess of the lower portion are protrusions or nubs 184 configured to engage with the corresponding recesses 176 in the upper portion 110 when the two portions are coupled together. The protrusions and recesses act as retainers to ensure that the plate 174 is aligned in a predetermined rotational position.

[0051] The upper and lower portions are coupled via a bracket 190 that is received within a correspondingly shaped recess 192. The bracket and recess is a spring strut mechanism 200 as shown in Figure 5. Said spring strut 200 broadly comprises a spring 202 secured about a fixing 204 that secures the upper and lower portions. In the example shown a screw 204 is used that is received within the bracket 190. The spring 202 is coupled to the screw 204 and the bracket 190 and acts to bias the upper and lower portions 110, 120 into engagement. In use, the spring 202 allows for a degree of lateral movement of the upper and lower portions sufficient to disengage

the retainers and free the upper and lower portions for relative rotation.

[0052] In use, a user removes the mouthpiece 130 to expose the empty storage portion inside the upper portion 110. The user then loads one or more cartridges 152 into the storage portion 150 and replaces the mouthpiece. The user can then slightly pull apart the upper and lower portions 110, 120, against the biasing force of the spring 202. This disengages the protrusions or nubs 184 from recesses 176 and allows for relative rotation of the upper and lower portions. The portions can then be rotated to a predetermined rotational position to select a loaded e-liquid cartridge for vaping activation. This orientation is determined by visual indicators and from the tactile feedback from the engagement of the retainers.

[0053] In the selected predetermined orientation, the cutaway 174 of the plate 172 aligns the electrodes 160 of the selected e-liquid cartridge with the electrode contact 180 to connect the heating element of the cartridge to the battery. Accordingly, once the user activates the device, either using a button or by sucking on the mouthpiece, the battery provides electrical current to the heating element, vaporising a portion of the e-liquid. Any unselected cartridge stored within the device is not activated.

[0054] Figure 6 shows views of mouthpiece 6000, for use with the personal vapor device of earlier Figures. Mouthpiece 6000 comprises three sections: an upper section 6100, intermediate layer 6200 and lower section 6300. The sections 6100, 6200, 6300 are coupled together in use, such that upper section 6100 is rotatable relative to lower section 6300. Figures 7a and 7b show the underside of upper section 6100 and a perspective view of intermediate layer 6200 respectively. For the purposes of clarity, these Figures will be discussed together.

[0055] The upper section 6100 comprises a body 6110, from which the mouthpiece protrusion 6120 and central protrusion 6140 extend. The central protrusion 6140 extends from the base of the body 6110, and is received by the central apertures 6220, 6350 of the intermediate layer and lower section respectively. The central protrusion 6140 may fit snugly in said apertures 6220, 6350, to resist the mouthpiece being pulled apart once formed. Mouthpiece protrusion broadly comprises a tapered flattened frustoconical shape to aid comfort for the lips of a user, with a vapor outlet 6130.

[0056] Both intermediate layer 6200 and lower section 6300 comprise apertures 6210, 6340. These apertures 6210, 6340 are positioned to align with the vapor outlet 6130 when the upper section 6100 of the mouthpiece 6000 is in one of four selectable predetermined positions (in the illustrated embodiment, each position is separated 90 degrees from an adjacent position). These correspond to an outlet 156 of a stored e-liquid cartridge 150 (see Figure 8), such that airflow through a single cartridge 150 to the vapor outlet 6130 can occur when the vapor outlet 6130 is in one of the selectable predetermined positions. This also restricts airflow through the cartridges 150 that

are not aligned with the vapor outlet 6130, reducing the risk of flavours mixing in use.

[0057] The lower section 6300 of the mouthpiece 6000 comprises retaining lugs 6330. These retaining lugs 6330 are positioned between the apertures 6340, and configured to slot between the cartridges 150 (i.e. align with the storage divider). These lugs 6330 restrict rotational movement of the lower section 6300 of the mouthpiece 6000 when the upper section 6100 is rotated, reducing the risk of misalignment during use. The body 6310 of the lower section 6300 is configured to push-fit into the upper portion 110 of the device, and may include a seal 136 similar to mouthpiece 130 to aid the frictional engagement between the mouthpiece 6000 and the upper portion 110 of the device 100.

[0058] As can be seen in Figure 7a, the upper section 6100 of the mouthpiece 6000 comprises a plurality of convex protrusions 6150 around the edge of its base. As can be seen in Figure 7b, the intermediate layer 6200 comprises corresponding concave recesses 6250 around its edge. The concave recesses 6250 are arranged to receive the convex protrusions 6150. This interaction is configured to retain the upper section 6100 of the mouthpiece 6000 in one of the selected predefined positions: the recesses 6250 and protrusions 6150 are spaced such that the vapor outlet 6130 aligns with one of the apertures 6210 when the protrusions 6150 are retained within the recesses 6250. Four concave recesses 6250 and four corresponding convex protrusions 6150 provides four positions that the upper section 6130 can be rotated through, each corresponding to a cartridge 150 used in the vaporiser 100. The illustrated arrangement allows for the upper section 6130 to be rotated through the selected positions with a minor application of rotational force, as discussed previously.

[0059] Figure 8 illustrates mouthpiece 6000 in situ in the upper portion 110 of the vaporiser 100. As can be seen in Figure 8, the alignment of vapor outlet 6130 with cartridge outlet 156 allows for vapor to be extracted by a user, once heat is applied to the cartridge 150 via electrical contact 154. The selectable nature of the mouthpiece 6000 complements the selection mechanism utilised with the upper portion 110 and lower portion 120 of the vaporiser 100. As discussed previously, only one of the cartridges 150 is heated with a single draw from the user, and the mouthpiece 6000 can be aligned to correspond with the outlet 156 of this cartridge 150.

Claims

1. A personal vaporiser device, said device comprising:
 - an upper portion comprising:
 - a mouthpiece having a vapor outlet for inhalation of a vapourised medium; and
 - a storage housing, said storage housing

- comprising:
 a storage divider for retaining at least two e-liquid cartridges in position relative to the mouthpiece, said e-liquid cartridges comprising:
- a vaporiser medium,
 - a heating element for vaporising the vaporiser medium;
 - an electrode for providing an electrical pathway to the heating element; and
 - an outlet coupled to the mouthpiece through which the vaporised medium can be sucked; and
- a lower portion, rotationally coupled to the upper portion, said lower portion comprising:
- an electrode contact configured to engage with an electrode of a single retained e-liquid cartridge; and
 - a battery electrically coupled to the electrode contact for supplying power to the heating elements;
- wherein the upper portion is rotatable into a selected predefined rotational position relative to the lower portion to align the electrode contact to an electrode such that activation of the battery vaporises any vaporiser medium in a single retained e-liquid cartridge; and
- wherein the mouthpiece is removable to allow loading and unloading of e-liquid cartridges into the storage divider.
2. The device of claim 1, wherein the upper portion and lower portion are connected with a bracket, said bracket comprising retainers for securing the upper and lower portions into each predefined rotational position.
 3. The device of claim 2, wherein then bracket comprises biasing means to bias the upper and lower portions together.
 4. The device of claim 3, wherein the biasing means comprises a spring strut coupled to the upper portion and received and secured within a rotation hole in the lower portion to couple the upper and lower portions; and
 optionally or preferably wherein the spring strut comprises a spring resiliently biased to pull the upper and lower portions together, and wherein movement of the upper portion away from and rotated relative to the lower portion disengages the retainers, allowing rotation into a new predefined rotational position.
 5. The device of one of claims 2 to 4, wherein the brack-

- et comprises a plate, said plate disposed adjacent to the electrodes of the e-liquid cartridges and comprising a cutaway aligned with the electrode contact and at least one blank such that, in use, rotation of the upper portion relative to the lower portion into the selected predefined rotational position rotates the cutaway into alignment with a selected electrode, the one or more blanks into alignment with any other electrodes, and the retainers into a secured position.
6. The device of any preceding claim, wherein the mouthpiece is push fit into the upper portion, said mouthpiece comprising a silicon gasket for forming a seal between the mouthpiece and the upper portion.
 7. The device of any preceding claim, wherein the lower portion comprises a pressure sensor, said pressure sensor configured to activate the battery when a pressure inside the device changes due to a user sucking on the mouthpiece.
 8. The device of any preceding claim, wherein the lower portion comprises an airway hole for circulating air through the device and through the e-liquid cartridges.
 9. The device of any preceding claim, wherein the storage divider comprises four sections for retaining four e-liquid cartridges.
 10. The device of any preceding, wherein the mouthpiece comprises:
 - an upper section comprising the vapor outlet; and
 - a lower section configured to retain the mouthpiece in the upper portion of the device; wherein the upper section is rotatably coupled to the lower section.
 11. The device of claim 10, wherein the upper section of the mouthpiece is rotatably coupled to the lower section such that the upper section is rotatable into one or more selected predefined rotational positions relative to the lower section of the mouthpiece to substantially align the vapor outlet with a cartridge aligned beneath the mouthpiece.
 12. The device of claim 11, wherein the mouthpiece further comprises an intermediate layer configured to couple the upper and lower sections, wherein the intermediate layer comprises:
 - one or more apertures configured to substantially align with the vapor outlet when the upper section is in the one or more selected predefined rotational positions.

13. The device of claim 11 or claim 12, wherein the lower section comprises one or more apertures configured to substantially align with the vapor outlet when the upper section is in the one or more selected predefined rotational positions, such that airflow is substantially limited to the cartridge aligned with the vapor outlet in use. 5

14. The device of claim 12 or 13, wherein: 10
the upper section of the mouthpiece comprises two or more convex protrusions;
the intermediate layer of the mouthpiece comprises two or more concave recesses; and 15
the concave recesses are configured to retain the convex protrusions and provide tactile feedback to define the selectable rotational positions of the upper section of the mouthpiece.

15. The device of any of claims 10 to 14, wherein the lower section comprises one or more retaining lugs configured to align with the storage divider and retain the cartridges in place relative to the mouthpiece. 20

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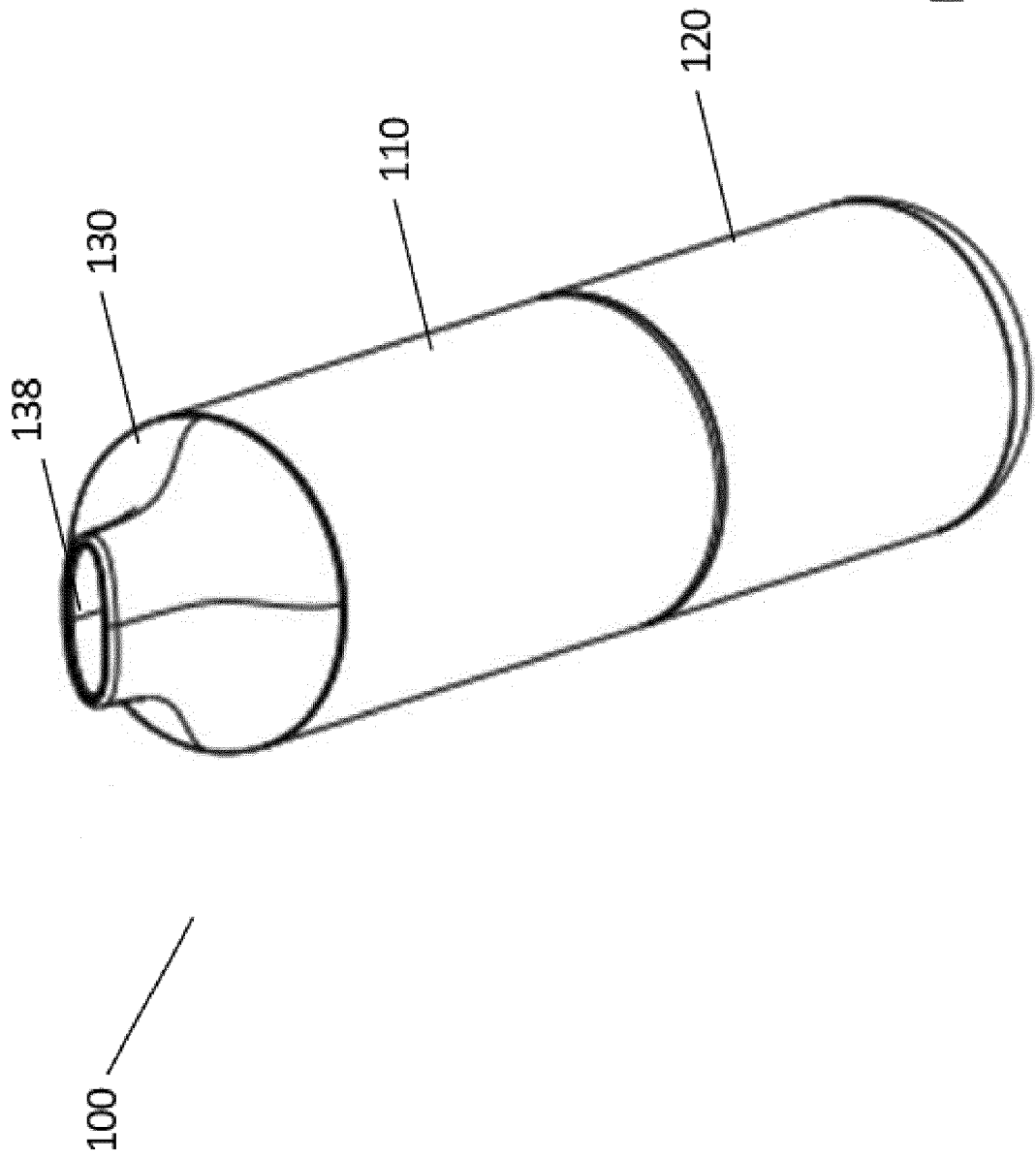


Figure 1

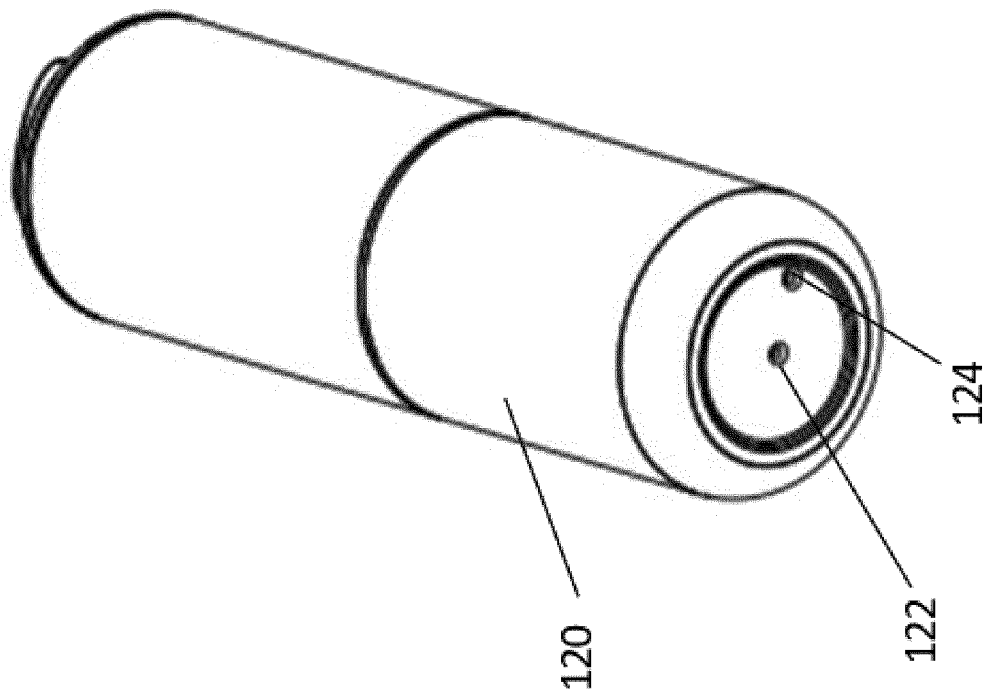


Figure 2

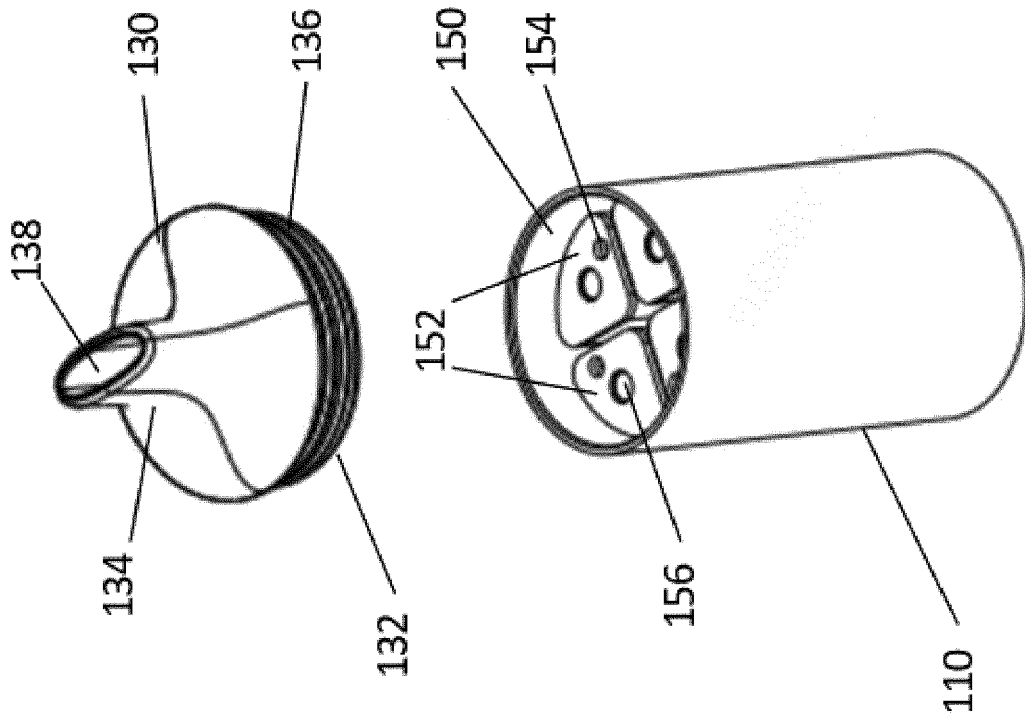


Figure 3

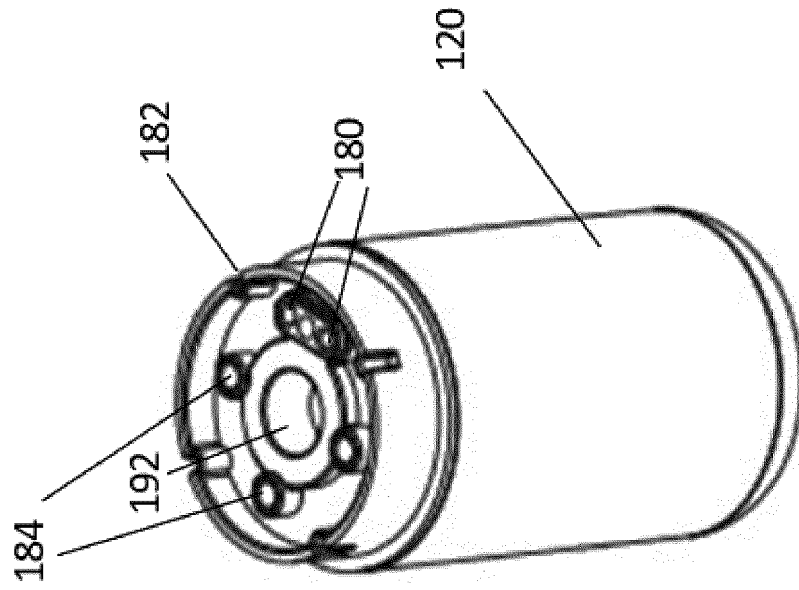


Figure 4b

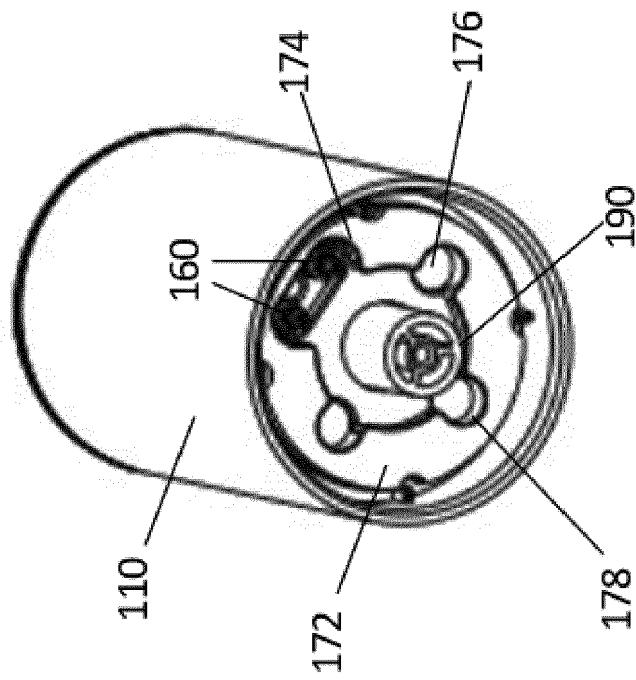


Figure 4a

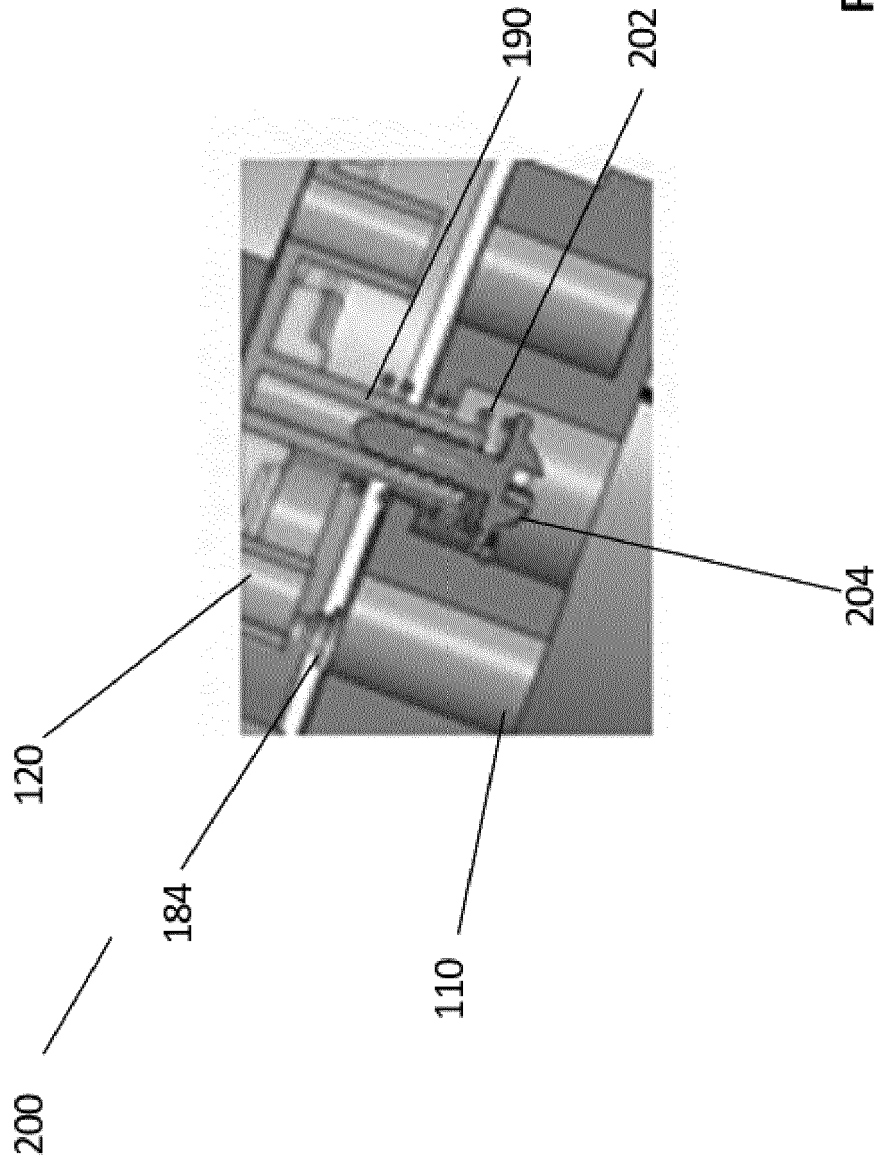


Figure 5

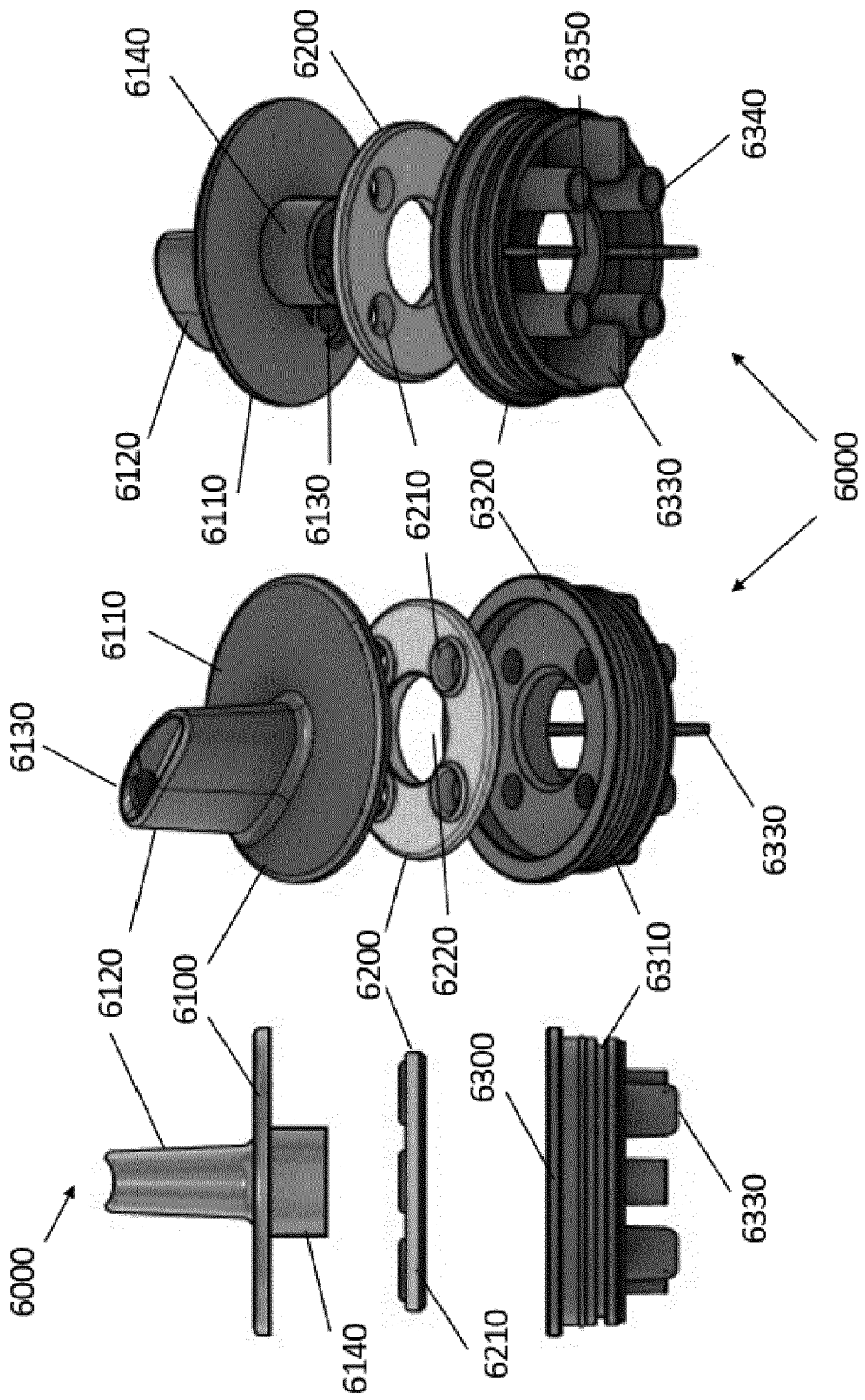


Figure 6

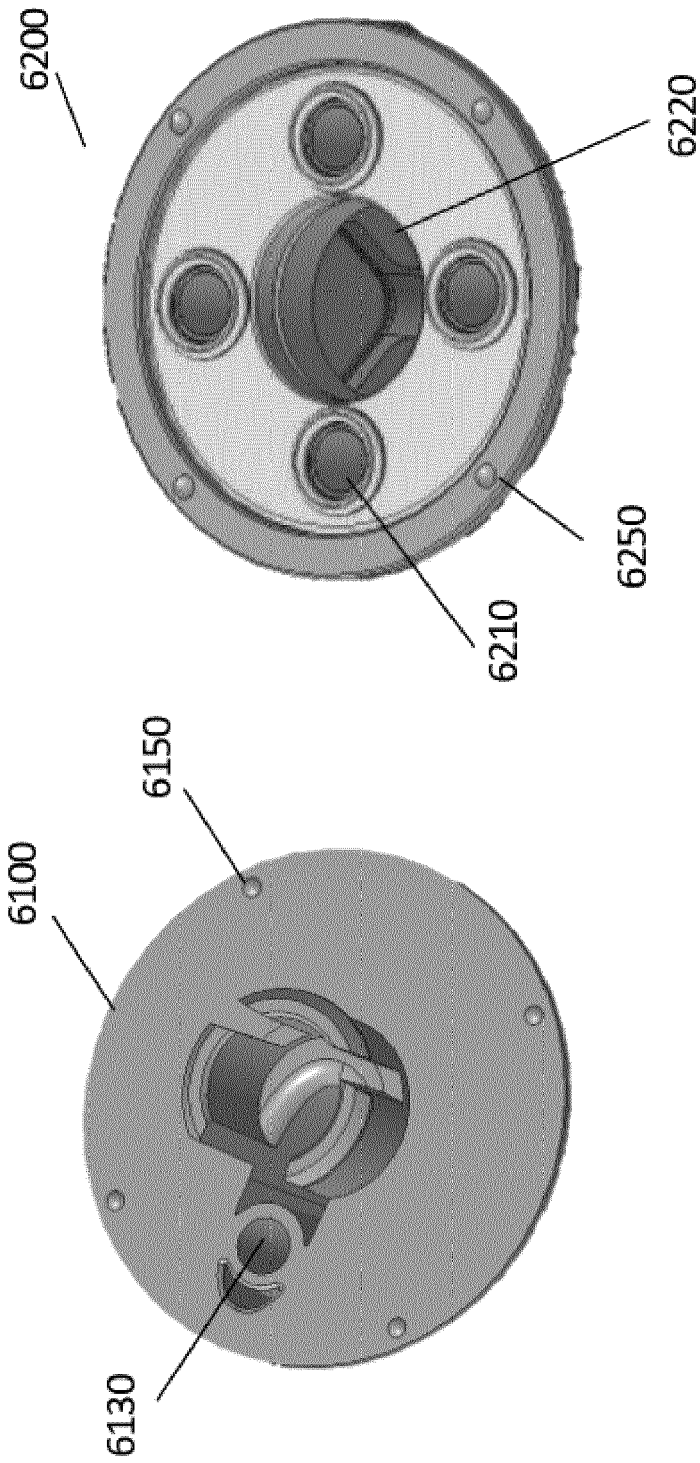


Figure 7b

Figure 7a

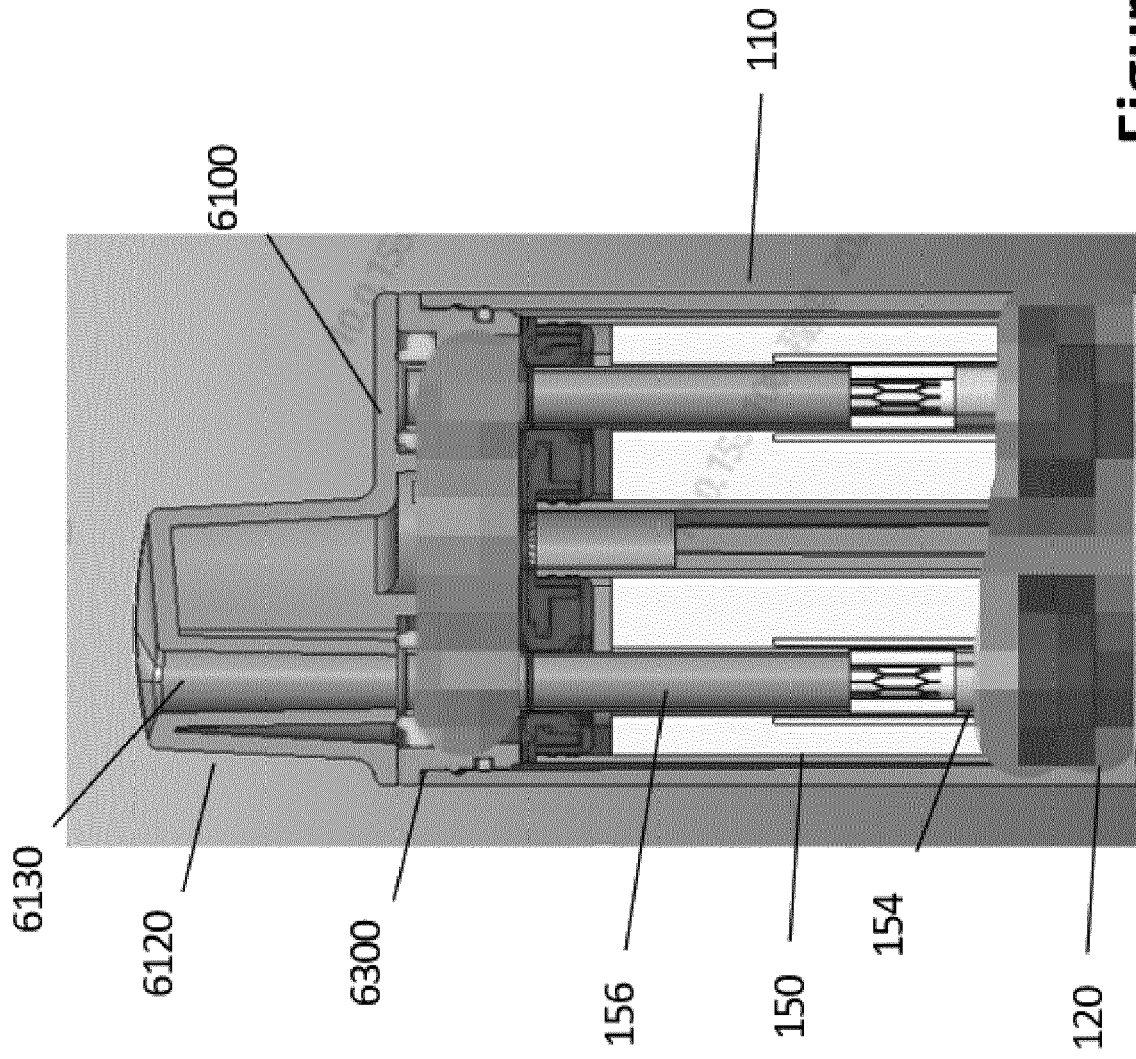


Figure 8



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Application Number

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A	* machine translation; last paragraph; page 1 *	4,14	ADD. A24F40/10 A24F40/42
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Place of search Munich	Date of completion of the search 30 July 2024	Examiner Schäfer, Lucas
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