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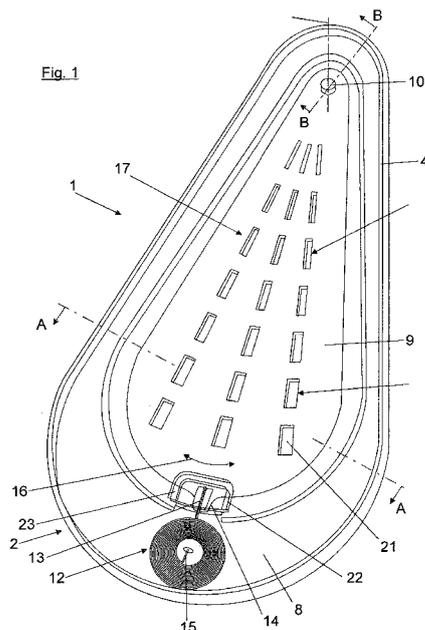
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(54) Title: DEVICE FOR DISPENSING FRAGRANCES AND/OR ACTIVE SUBSTANCES, FOR EXAMPLE FOR FRESHENING THE AIR OF VEHICLE CABINS, AND METHOD FOR OPERATING SUCH A DEVICE



(57) Abstract: Device for dispensing fragrances and/or active substances, for example for freshening the air of vehicle cabins, and method for operating such a device. The invention relates to a device for dispensing fragrances and/or active substances, for example for freshening the air in vehicle cabins, having a housing (2) for accommodating a fragrance and/or active substance generator (6) which dispenses a fragrance and/or active substance (7) as a volatile substance, preferably for freshening the air, the housing (2) having at least one housing-outflow opening (18) for the outflow of the fragrance and/or active substance (7). According to the invention, it is provided that an adjustably guided cover element (9) is arranged on the housing (2), which cover element (9) is automatically adjustable, depending on the temperature, between a closed position (26), in which the at least one housing-outflow opening (18) is closed by means of the cover element (9) in order to prevent the fragrance and/or active substance (7) from escaping from the housing (2), and an open position (20) in which the at least one housing-outflow opening (18) for the escape of fragrance and/or active substance by means of the cover element (9) is completely open or partially open in intermediate positions. Preferably, a bimetal actuator (12) is provided for the temperature-dependent, automatic adjustment of the cover element (9), which is connected on the one hand to the housing (2) and on the other hand to the cover element (9).



## Description

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Device for dispensing fragrances and/or active substances, for example for freshening the air of vehicle cabins, and method for operating such a device

10 The invention relates to a device for dispensing fragrances and/or active substances, for example for freshening the air of vehicle cabins, according to the preamble of claim 1, and to a method for operating a device according to the preamble of claim 19.

15 Devices with a fragrance and/or active substance generator in a housing with outflow openings are generally known in various embodiments.

Active vaporisation devices are known as fragrance and/or active substance generators, with which volatile substances with fragrances are released from a housing into the environment by heating liquids in particular. Such active devices usually require an electrical auxiliary energy as evaporation energy and are intended in particular for building interiors.

25 Furthermore, devices are known which automatically release volatile substances at normal room temperatures without auxiliary energy. For this purpose, corresponding materials are often contained in block form as a fragrance block in a housing with at least one outflow opening. Such devices are generally known as disposable articles after the consumption of a fragrance block or with an openable housing for the exchange of a fragrance block.

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Air freshening, especially in a vehicle cabin, for example in a passenger car, is perceived as pleasant by the people present, especially at higher temperatures. At lower temperatures, on the other hand, air freshening by a device is often not necessary and may even be perceived as annoying. Since the outflow openings  
5 in the housing of the known inactive devices are constantly open, volatile substances are permanently released, which adversely increases the consumption of a fragrance block and thus reduces the functional life of the device.

10 It is the object of the invention to create a device for dispensing fragrances and/or active substances, for example for freshening the air in vehicle cabins, with which the dispensing of a fragrance and/or active substance is simplified. A further object of the invention is to provide a method for operating such a device.

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The object of the invention is solved with respect to the device with the features of claim 1 and with respect to the method with the features of claim 17.

According to claim 1, the device for dispensing fragrances and/or active  
20 substances comprises a housing for accommodating a fragrance and/or active substance generator which dispenses a fragrance and/or active substance as a volatile substance, preferably for freshening the air, the housing having at least one housing-outflow opening for the outflow of the fragrance and/or active substance. According to the invention, the housing has at least one adjustably  
25 guided cover element which is automatically and temperature-dependently adjustable by means of a temperature-dependently actuatable actuator between a closed position, in which the at least one housing-outflow opening is closed by means of the cover element to prevent the fragrance and/or active substance  
30 at least one housing-outflow opening (for the escape of fragrance and/or active

substance) is completely open by means of the cover element or partially open in intermediate positions.

In this way, the amount of fragrance and/or active substance flowing out of the at least one housing-outflow opening and thus the degree of outflow is automatically changed depending on the temperature between no outflow and maximum outflow, if necessary with possible intermediate degrees of outflow. Dimensioning and adaptation to current conditions are possible in particular by the position and size of one or more housing-outflow openings and the relative position of the cover element, if necessary with cover element-outflow openings fitted there, as well as by specifying and dimensioning the adjustment path of the bimetal actuator. In this way, the degree of outflow can be preset, for example, for optimum refreshment, in particular in a vehicle cabin, for example of a passenger car, as a function of the temperature. Moreover, the mechanical arrangement can be designed simply and inexpensively. It is understood that the application in connection with air freshening is only exemplary here and of course other applications, e.g. in the field of pest control and/or pheromones, are also possible, just to show some further possible applications by way of example.

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The temperature-dependently actuatable actuator, which operates without auxiliary power, is preferably built in a particularly simple, inexpensive and functionally reliable manner by means of a bimetallic actuator, which bimetallic actuator is, directly or indirectly, connected on the one hand to the housing and on the other hand to the cover element.

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Bimetal actuators regularly have a bimetal strip for temperature-dependent automatic actuation and control of mechanically moving parts. For this purpose, the bimetal strip is formed from two metal layers that are bonded or form-fitted to each other and one above the other and that have different coefficients of

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thermal expansion. As a result, one of the layers expands more than the other when the temperature changes, causing the bimetal strip to bend automatically. When the ends of the strip are fixed to components that can be moved against each other, a relative movement with an adjustment path can thus be exerted.

5 For a compact design with a long bimetal strip and a large adjustment path range, it is advantageous to design the bimetal strip of a bimetal actuator in the form of a spiral as a bimetal spiral element.

However, the temperature-dependently actuatable actuator, which is operated  
10 without any auxiliary energy, can also be designed in other ways. Some examples:

Wax actuator: These actuators use the expansion and contraction of a wax element in response to temperature changes. The wax element is for example  
15 sealed in a chamber and connected to a piston or valve, which moves in response to the temperature changes.

Shape memory alloy (SMA): These materials have the ability to change shape in response to changes in temperature.

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Although the use of a bimetal or bimetallic actuator is referred to herein as a preferred embodiment, such bimetal actuator may be replaced at any time by the above alternatives if this is technically feasible and suitable.

25 For example, according to a particularly preferred embodiment of the invention, it is provided that the actuator, for example a bimetal actuator, is suitable and/or designed to move the at least one cover element into the closed position when a defined lower temperature threshold is reached or undershot and into the open position when a defined upper temperature threshold is reached, which has a  
30 higher temperature than the lower temperature threshold, the cover element is

moved into the open position, whereby at temperatures in the range between the lower temperature threshold and the upper temperature threshold, the at least one cover element is moved into intermediate positions with at least one housing-outflow opening partially open. This enables an advantageous controlled adjustment within precisely specified limits.

Further advantageously, the adjustment path for the at least one cover element is limited at the closed position by a first housing-side stop element and at the open position by a second housing-side stop element, whereby the free adjustment path of the actuator is greater than the adjustment path limited by the stop elements. This means that the free adjustment path of the actuator without stop element limitation is advantageously selected to be greater than the adjustment path between the stop elements, so that the cover element is moved quickly into the closed position and into the open position, where it is pretensioned. This ensures fast, safe control that is insensitive to housing movements, such as those that can occur when driving.

Furthermore, according to a particularly preferred embodiment, the fragrance and/or active substance generator is to be suitable and/or designed to emit a fragrance and/or active substance when the at least one cover element is in an open position, wherein it is preferably provided that the fragrance and/or active substance generator emits a fragrance and/or active substance at least at temperatures which are equal to or higher than the lower temperature threshold. This ensures that a fragrance and/or active substance is emitted at least whenever the cover element is in an open position. Of course, it can also be provided that a fragrance and/or active substance is also emitted when the cover element is in the closed position. In this case, the fragrance and/or active substance accumulates in the device and is only released when the cover element is moved to an open position. The device can therefore be handled and used flexibly.

In principle, the fragrance and/or active substance generator can also be an active device in which the fragrance and/or active substance is generated with external auxiliary energy. However, in a preferred embodiment, the fragrance and/or active substance generator should be a fragrance block, for example a fragrance block that consumes itself by emitting fragrance and/or active substance or in which, for example, gases stored in a space lattice structure escape by evaporation. Here, too, it may again preferably be provided that the fragrance block is suitable and/or designed to release a fragrance and/or active substance at least at temperatures which are equal to or higher than the lower temperature threshold.

The housing can in principle be constructed in different ways, but is preferably constructed in the form of a trough or box and comprises a first, preferably lower, housing part onto which a lid-like second, preferably upper, housing part is detachably fitted, preferably detachably and accurately fitted, with the first housing part and the fitted second housing part forming a housing interior for accommodating at least a part of the fragrance and/or active substance generator, which is for example a fragrance block. The at least one housing-outflow opening is preferably formed in the first housing part and/or in the second housing part, preferably in a housing outer wall of the first housing part and/or the second housing part, but could in principle also be arranged alternatively or additionally at another location. Overall, this results in a simple and yet functionally reliable construction of the device.

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Even if the terms “lower” and “upper” are used in combination with the term “housing” this does not imply that the upper housing must necessarily always and everywhere be above the lower housing, although this could of course be the case and is a preferred embodiment. However, in the context of the present invention, there is no preference as to direction or placement in a space. That

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is, in some applications, the lower housing can readily be the upper housing and the upper housing can correspondingly be the lower housing. Or, the lower housing may be arranged on the left (or right) side, while the upper housing is correspondingly arranged on the right (or left) side. The designations “lower” and “upper” are thus to be seen as completely independent of a conventional spatial orientation, and the lower housing and the upper housing can thus be arranged in the sense of a first housing and a second housing arbitrarily in a three-dimensional space.

10 The at least one cover element preferably comprises at least one cover element-outflow opening which, when the at least one cover element is moved into the open position, can be placed in alignment over the respectively associated at least one housing-outflow opening in such a way that the two associated openings form a common continuous opening for the escape of fragrance and/or active substance and/or that the at least one housing-outflow opening is completely open and not covered. Such a structure is technically simple to manufacture and is characterised by a high level of functional safety which is not or only slightly susceptible to faults.

20 In an advantageous, compact and component-reduced further development, a housing outer wall of the housing, preferably of the first housing part and/or of the second housing part, is flat and level on its surface facing the at least one cover element, at least in the area of the at least one housing-outflow opening. Furthermore, it is preferably provided that the at least one cover element is designed to be flat at least in regions on its surface facing the housing outer wall, so that the cover element can be adjusted to lie resp. rest on the housing outer wall during a relative adjustment by means of the actuator, whereby it is preferably provided that the cover element is formed by a flat cover plate that reduces the size and is easy to produce.

Instead of a single housing outlet opening and a single associated cover element outflow opening, a pattern with several housing outflow openings is advantageously provided in the housing respectively in the housing outer wall of the housing, preferably in the first housing part and/or in the second housing part, and the identical pattern with several cover element outflow openings in the at least one cover element. This means that both the housing and the at least one cover element each have an identical or identical pattern with several outflow openings, which can be aligned one above the other by adjusting the cover element by means of the actuator in the open position. Depending on the pattern, possibly with different patterns in the housing outer wall and in the cover element, the position and size of the outflow openings formed in the pattern and the arrangement of stop elements for the cover element, dimensioning options for a temperature-dependent degree of outflow are possible for adaptation to the conditions of use and the manufacturing measures.

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The at least one cover element, in particular in the form of a cover plate, can, for example, be guided adjustably in a linear guide on the housing, for example to provide an axial movement of the cover element relative to the housing. However, according to an alternative embodiment in this respect, it is particularly easy and cost-effective to produce a guide for the cover element on a pivot joint with a vertical pivot axis, for example with the pivot joint ensuring a rotation of the cover element about the pivot joint relative to the housing. In a preferred embodiment, the pivot joint can be arranged on a first side of the cover element in relation to a longitudinal direction of the cover element and the bimetal actuator can be connected to the opposite side of the cover element in relation to the longitudinal direction. Such a structure is characterised by high functional safety and is also easy to manufacture.

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Alternatively the pivot joint, preferably the pivot joint and the actuator, is respectively are arranged in the center of the cover element to ensure rotation of the cover element about the pivot joint relative to the housing.

- 5 In principle, a bimetal actuator could, for example, only be formed with a single, for example largely straight bimetal strip, one end side of which is, directly or indirectly, connected to the housing and the other end side of which is, directly or indirectly, connected to the cover element. A bimetal actuator formed as a bimetal spiral element with a spirally wound bimetal strip, for example forming a  
10 bimetal spiral spring, can be used even more flexibly and is also fundamentally even more suitable for setting a relatively large actuating adjustment path and a relatively large actuating force.

A mechanically favourable, space-saving and functional arrangement also  
15 results from a construction in which the spiral region of the actuator, which is designed as a bimetal spiral element, preferably lies flat on the housing outer wall of the housing, this contact or supporting region being adjacent to a region of the cover element which is arranged adjacent or opposite the pivot joint. The spiral outer end of the actuator is also, directly or indirectly, attached to the  
20 adjustable cover element, while the spiral inner end of the actuator is, directly or indirectly, attached to the housing outer wall of the housing.

In a further advantageous embodiment, the housing with its housing outer wall and the cover element which is pivotably displaceable thereon are of conical  
25 design, wherein the narrower region lies in the region of the pivot joint and the wider region lies in the region of the bimetal actuator. As the same pattern of several housing-outflow openings and cover element-outflow openings, at least two adjacent rows of spaced longitudinal slots are formed, which, starting from the wider area, taper towards each other in the direction of the pivot joint and  
30 wherein the slot widths of the longitudinal slots correspondingly decrease

conically in the direction of the pivot joint. Thus, a functional and visually appealing device is formed.

5 The housing and the cover element can be manufactured simply and inexpensively, for example from plastic, in particular using the plastic injection moulding process.

10 Obviously, the device described above can be used in any location and in connection with a wide variety of applications. However, the device is particularly suitable for smaller enclosed spaces, especially for the interior of vehicle cabins in passenger cars, trucks, construction machinery, ships, aircraft, etc.

15 A method for operating a device, preferably for operating a device as described above, is further claimed, wherein the device comprises a housing for accommodating a fragrance and/or active substance generator which emits a fragrance and/or active substance as a volatile substance, preferably for air freshening, wherein the housing comprises at least one housing-outflow opening for the outflow of the fragrance and/or active substance. According to  
20 the invention the housing has at least one adjustably guided cover element which is automatically and temperature-dependently adjustable by means of a temperature-dependently actuatable actuator between a closed position, in which the at least one housing-outflow opening is closed by means of the cover element in order to prevent an escape of fragrance and/or active substance from  
25 the housing, and an open position, in which the at least one housing-outflow opening is completely open or, in intermediate positions, partially open for the escape of fragrance and/or active substance by means of the cover element. Preferably, a bimetal actuator is provided for temperature-dependent, automatic adjustment of the cover element. Such bimetal actuator might be, directly or

indirectly, connected on the one hand to the housing and on the other hand to the cover element.

The advantages resulting from this are identical to those of the device according to the invention, so that in order to avoid repetition, reference is made to the explanations given there.

According to a particularly advantageous method the actuator moves the cover element into the closed position when a defined lower temperature threshold is reached or undershot and moves it into the open position when a defined upper temperature threshold is reached which has a higher temperature than the lower temperature threshold, wherein at temperatures in the range between the lower temperature threshold and the upper temperature threshold, an adjustment of the cover element into intermediate positions takes place with the at least one housing-outflow opening being partially open.

A drawing is used to describe an example of an embodiment of a device according to the invention.

This drawing shows:

Fig. 1 a top perspective view of an example of a device according to the invention,

Fig. 2 an enlarged partial section along the line B-B from figure 1,

Fig. 3 a top view of a bimetal actuator as a bimetal spiral element,

Fig. 4 a sectional view along line A-A of Fig. 1 with a cover element in the open position and,

Fig. 5 a view according to figure 4 with the cover element in the closed position,

5 Fig. 6a, b the operating principle of an alternative embodiment with linear displacement of the cover element relative to the housing, and

Fig. 7 the operating principle of a further alternative embodiment with a cover element rotating about a central pivot joint.

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Figure 1 shows an exemplary device 1 that can be used, just by way of example, in a vehicle cabin. This device 1 comprises a housing 2 which is constructed like a trough or box and comprises a first, here lower, housing part 3 and a second, here upper, housing part 4. In the example shown here, the upper housing part  
15 4 is of lid-like design and is fitted precisely and detachably onto the lower housing part 3 (see in particular also Figures 4 and 5). The lower housing part 3 and the upper housing part 4 form a housing interior 5, in which a fragrance block is accommodated as a fragrance and/or active substance generator 6. Such a fragrance block releases fragrance and/or active substance when  
20 defined temperatures are reached, which is also referred to as outgassing.

The upper housing part 4 here comprises a substantially flat housing outer wall 8 (here a top wall) on which a cover element 9, here exemplarily in the form of a flat cover plate, rests and can be pivoted over a pivot joint 10 with a vertical  
25 pivot axis 11.

The housing 2 with its top wall 8 and the cover element 9, which is pivotably displaceable thereon, are here only exemplarily conically formed, whereby the pivot joint 10 is arranged in the narrower end region. Seen in the longitudinal  
30 direction of the cover element 9, a bimetal actuator 12 is arranged here opposite

the pivot joint 10, which is designed here exemplarily as a bimetal spiral element with a spirally wound bimetal strip and which serves for the swivel adjustment of the cover element 9.

5 In this case, the spiral region of the bimetal actuator 12 preferably lies flat on the top wall 8 of the upper housing part 4, whereby a spiral outer end 13 of the bimetal actuator 12 here again only exemplarily engages in a tail 14 of the cover element 9 and is connected thereto. A spiral inner end 15 of the bimetal actuator 12, on the other hand, is connected to the top wall 8 in a fixed position. Due to  
10 this arrangement, the spiral outer end 13 carries out an adjustment path in the event of a temperature change, whereby the cover element 9 with its wide area close to the spiral is moved back and forth on the top wall 8 in accordance with the temperature change, as indicated by arrow 16.

15 The same pattern 17 with housing outflow openings 18 and cover plate outflow openings 19 is incorporated in the top wall 8 and in the cover element 9 respectively. The same pattern 17 of the outflow openings 18, 19 is formed by several, here exemplarily three, adjacent rows 20 of longitudinally spaced longitudinal slots 21, which, starting from the wider area of the device 1, taper  
20 towards each other in the direction of the pivot joint 10, whereby the slot widths of the longitudinal slots 21, also only exemplarily, decrease correspondingly in the direction of the pivot joint 10.

The swivel path of the cover element 9 (arrow 16) is limited by two spaced stop  
25 elements 22, 23 for the tail 14. As can be seen in Figure 4, when the cover element 9 is swivelled at the stop element 23, an open position 24 is assumed in which the housing-outflow openings 18 and cover element-outflow openings 19 are aligned one above the other, thus releasing the outflow of fragrance and/or active substance 7 into the environment (arrows 25).

In contrast, when the cover element 9 is pivoted to the opposite stop element 22, a closed position 26 is assumed in which the pattern 17 of the housing-outflow openings 18 and cover element-outflow openings 19 are no longer superimposed. Depending on the temperature response and the adjustment path of the bimetal actuator 12, the housing-outflow openings 18 and the cover element-outflow openings 19 can also be partially superimposed, so that only a partial outflow of fragrance and/or active substance takes place. The adjustment path of the spiral outer end 13 of an exposed bimetal actuator 12 with a fixed spiral inner end 15 of the bimetal actuator 12 (see Figure 3) is preferably greater than the adjustment path between the stop elements 22 and 23 of the installed bimetal actuator 12, so that the cover element 9 rests against the stop elements 22, 23 with a pretension both in the open position 24 and in the closed position 26, i.e. it rests securely and without interference.

Figures 6a and 6b show only schematic sketches of another exemplary embodiment in which the cover element 9 is adjustably guided in a linear guide of the housing 2 to effect an axial displacement of the cover element 9 relative to the housing 2. In Figure 6a, the cover element 9 is in a closed position 26 in which the pattern 17 of the housing-outflow openings 18 and cover element-outflow openings 19 are not superimposed. When the cover element 9 is moved in the direction of the arrow 27 (Fig. 6a), the housing-outflow openings 18 and cover element-outflow openings 19 are aligned one above the other (see Fig. 6b), thus releasing the outflow of fragrance and/or active substance 7 into the environment. Depending on the temperature response and the adjustment path of the bimetal actuator 12, the housing-outflow openings 18 and the cover element-outflow openings 19 can also be partially superimposed, so that only a partial outflow of fragrance and/or active substance takes place.

In the embodiment of Figures 6a and 6b, the linearly forced guidance of the cover element 9 on the housing 2 can be provided and formed, for example, in

the area of the left and right housing edges 28, 29. The actuator is not explicitly shown here, but it engages the housing 2 on the one hand and the cover element 9 on the other. The temperature-dependently actuatable actuator can be formed by a bimetal actuator or also by a wax actuator, in which the wax element  
5 is enclosed in a chamber connected to the housing and is further connected to a piston which is connected to the cover element 9 and moves in response to temperature changes.

Figure 7 shows another alternative embodiment. In this embodiment both the  
10 pivot joint 10 and the temperature-dependently actuatable actuator 12, preferably a bimetal spiral element, are arranged in the center of the cover element 9 to ensure rotation of the cover element 9 about the pivot joint 10 relative to the housing 2. The cover element 9 can be brought by means of the in a closed position in which the pattern 17 of the housing-outflow openings 18 and cover  
15 element-outflow openings 19 are superimposed (not shown). When the cover element 9 is rotated around the pivot joint 10, the housing-outflow openings 18 and cover element-outflow openings 19 are aligned one above the other (not shown), thus releasing the outflow of fragrance and/or active substance 7 into the environment. Depending on the temperature response and the adjustment  
20 path of the bimetal actuator 12, the housing-outflow openings 18 and the cover element-outflow openings 19 can also be partially superimposed (as shown in Figure 7), so that only a partial outflow of fragrance and/or active substance takes place.

List of reference signs

5	1	device
	2	housing
	3	first or lower housing part
	4	second or upper housing part
	5	housing interior
10	6	fragrance block
	7	fragrance and/or active substance
	8	housing outer wall
	9	cover element
	10	pivot joint
15	11	pivot axis
	12	bimetal actuator
	13	spiral outer end
	14	tail
	15	spiral inner end
20	16	arrow
	17	pattern
	18	housing-outflow openings
	19	cover element-outflow openings
	20	rows
25	21	longitudinal slots
	22	stop element
	23	stop element
	24	open position
	25	arrows
30	26	closed position
	27	arrow

Claims

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1. Device for dispensing fragrances and/or active substances, having a housing (2) for accommodating a fragrance and/or active substance generator (6) which dispenses a fragrance and/or active substance (7) as a volatile substance, preferably for freshening the air, the housing (2) having at least one housing-outflow opening (18) for the outflow of the fragrance and/or active substance (7),

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**characterised in that**

the housing (2) has at least one adjustably guided cover element (9) which is automatically and temperature-dependently adjustable by means of a temperature-dependently actuatable actuator (12) between a closed position (26), in which the at least one housing-outflow opening (18) is closed by means of the cover element (9) in order to prevent fragrance and/or active substance (7) from escaping from the housing (2), and an open position (20), in which the at least one housing-outflow opening (18) is completely open or, in intermediate positions, partially open in order for fragrance and/or active substance to escape by means of the cover element (9).

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2. Device according to claim 1, **characterised** in that a bimetal actuator is provided as an actuator (12) for the temperature-dependent, automatic adjustment of the cover element (9), which actuator (12) is, directly or indirectly, connected on the one hand to the housing (2) and on the other hand to the cover element (9).

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3. Device according to claim 1 or 2, **characterised** in that the actuator (12) is suitable and/or designed to move the at least one cover element (9) into the closed position (26) when a defined lower temperature threshold is reached or undershot and into the open position (24) when a defined upper temperature threshold is reached, which has a higher temperature than the lower temperature threshold, wherein at temperatures in the range between the lower temperature threshold and the upper temperature threshold an adjustment of the at least one cover element (9) into intermediate positions takes place with the at least one housing-outflow opening (18) being partially open.
4. Device according to any one of the preceding claims, **characterised** in that the adjustment path of the at least one cover element (9) is limited at the closed position (26) by a first housing-side stop element (22) and at the open position (24) by a second housing-side stop element (23), the free adjustment path of the actuator (12) being greater than the adjustment path limited by the stop elements (22, 23).
5. Device according to any one of the preceding claims, **characterised** in that the fragrance and/or active substance generator (6) is suitable and/or designed to emit a fragrance and/or active substance when the at least one cover element (9) is in an open position (20), optionally that the fragrance and/or active substance generator (6) emits a fragrance and/or active substance at least at temperatures which are equal to or higher than the lower temperature threshold.
6. Device according to any one of the preceding claims, **characterised** in that the fragrance and/or active substance generator (6) is a fragrance block, optionally that the fragrance block is suitable and/or designed to

release a fragrance and/or active substance at least at temperatures which are equal to or higher than the lower temperature threshold.

- 5 7. Device according to any one of the preceding claims, **characterised** in that the housing (2) is constructed in a trough-like or box-like manner and comprises a first, preferably lower, housing part (3) onto which a lid-like second, preferably upper, housing part (4) is detachably fitted, the first housing part (3) and the second housing part (4) forming a housing interior (5) for accommodating at least a part of the fragrance and/or active substance generator (6), preferably in such way that the at least one housing-outflow opening (18) is formed in the first housing part (3) and/or in the second housing part (4) , preferably in a housing outer wall (8) of the first housing part (3) and/or the second housing part (4).
- 10
- 15 8. Device according to any one of the preceding claims, **characterised** in that the at least one cover element (9) comprises at least one cover element-outflow opening (19) which, when the at least one cover element (9) is moved into the open position, is placeable in alignment over the respectively associated at least one housing-outflow opening (18) in such a way that the two associated openings form a common continuous opening for the escape of fragrance and/or active substance (7) and/or that the at least one housing-outflow opening (18) is completely open and not covered.
- 20
- 25 9. Device according to claim 7 or 8, **characterised in that**, a housing outer wall (8) of the housing (2), preferably of the first housing part (3) and/or of the second housing part (4), is flat and level on its surface facing the at least one cover element (9) at least in the region of the at least one housing-outflow opening (18), and
- 30

the at least one cover element (9) is designed to be flat at least in regions on its surface facing the housing outer wall (8), so that the cover element (9) is adjustable to lie on the housing outer wall (8) during a relative adjustment by means of the actuator (12), preferably in such way that the at least one cover element (9) is formed by a flat cover plate.

- 5
10. Device according to claim 9, **characterised** in that a pattern (17) with several housing-outflow openings (18) is formed in the housing (2), preferably in the first housing part (3) and/or in the second housing part (4), and the identical pattern (17) with several cover element-outflow openings (19) is formed in the at least one cover element (9), which are placed in alignment one above the other in the open position (24) by means of the actuator (12).
- 10
11. Device according to any one of the preceding claims, **characterised** in that the at least one cover element (9) is adjustably guided in a linear guide of the housing (2), preferably providing an axial movement of the cover element relative to the housing (2).
- 15
12. Device according to any one of claims 1 to 10, **characterised** in that the at least one cover element (9) is guided on a pivot joint (10) with a vertical pivot axis (11) with the pivot joint (10) ensuring a rotation of the cover element (9) about the pivot joint (10) relative to the housing (2).
- 20
13. Device according to claim 12, **characterised** in that the pivot joint (10) is arranged on a first side of the cover element (9) in relation to a longitudinal direction of the cover element (9) and that the actuator (12) is connected to the opposite side of the cover element (9) in relation to the longitudinal direction.

14. Device according to claim 12, **characterised** in that the pivot joint (10), preferably the pivot joint (10) and the actuator (12), is arranged in the center of the cover element (9) to ensure rotation of the cover element (9) about the pivot joint (10) relative to the housing (2).

5

15. Device according to any one of the preceding claims, **characterised** in that the actuator (12) is a bimetal actuator and formed by a bimetal strip, one end side (15) of which is, directly or indirectly, connected to the housing (2) and the other end side (13) of which is, directly or indirectly,  
10 connected to the cover element (9).

16. Device according to any one of the preceding claims, **characterised in** that the actuator (12) is formed as a bimetal spiral element with a spirally wound bimetal strip.

15

17. Device according to 16, **characterised in that,**

the spiral region of the actuator (12) rests, preferably flat, on the housing outer wall (8) of the housing (2), preferably on the housing outer wall (8)  
20 of the second housing (4), this supporting region being adjacent to a region of the cover element (9) which is arranged adjacent or opposite the pivot joint (10),

the spiral outer end (13) of the actuator (12) is, directly or indirectly,  
25 attached to the adjustable cover element (9), and

the spiral inner end (15) of the actuator (12) is, directly or indirectly, attached to the housing outer wall (8) of the housing (2).

30

18. Device according to claim 17, **characterised** in that

the housing (2) with its housing outer wall (8) and the cover element (9) which is pivotably displaceable thereon are of conical design, with the narrower region lying in the region of the pivot joint (10) and with the wider region lying in the region of the actuator (12), and

at least two adjacent rows (20) of spaced-apart longitudinal slots (21) are formed as the same pattern (17) of a plurality of housing-outflow openings (18) and cover element-outflow openings (19) which, starting from the wider region, taper towards one another in the direction of the pivot joint (10), and wherein the slot widths of the longitudinal slots (21) correspondingly decrease conically in the direction of the pivot joint (10).

19. Method for operating a device (1), preferably for operating a device (1) according to one of the preceding claims, wherein the device (1) comprises a housing (2) for receiving a fragrance and/or active substance generator (6) which emits a fragrance and/or active substance (7) as a volatile substance, preferably for air freshening, wherein the housing (2) comprises at least one housing-outflow opening (18) for the outflow of the fragrance and/or active substance (7),

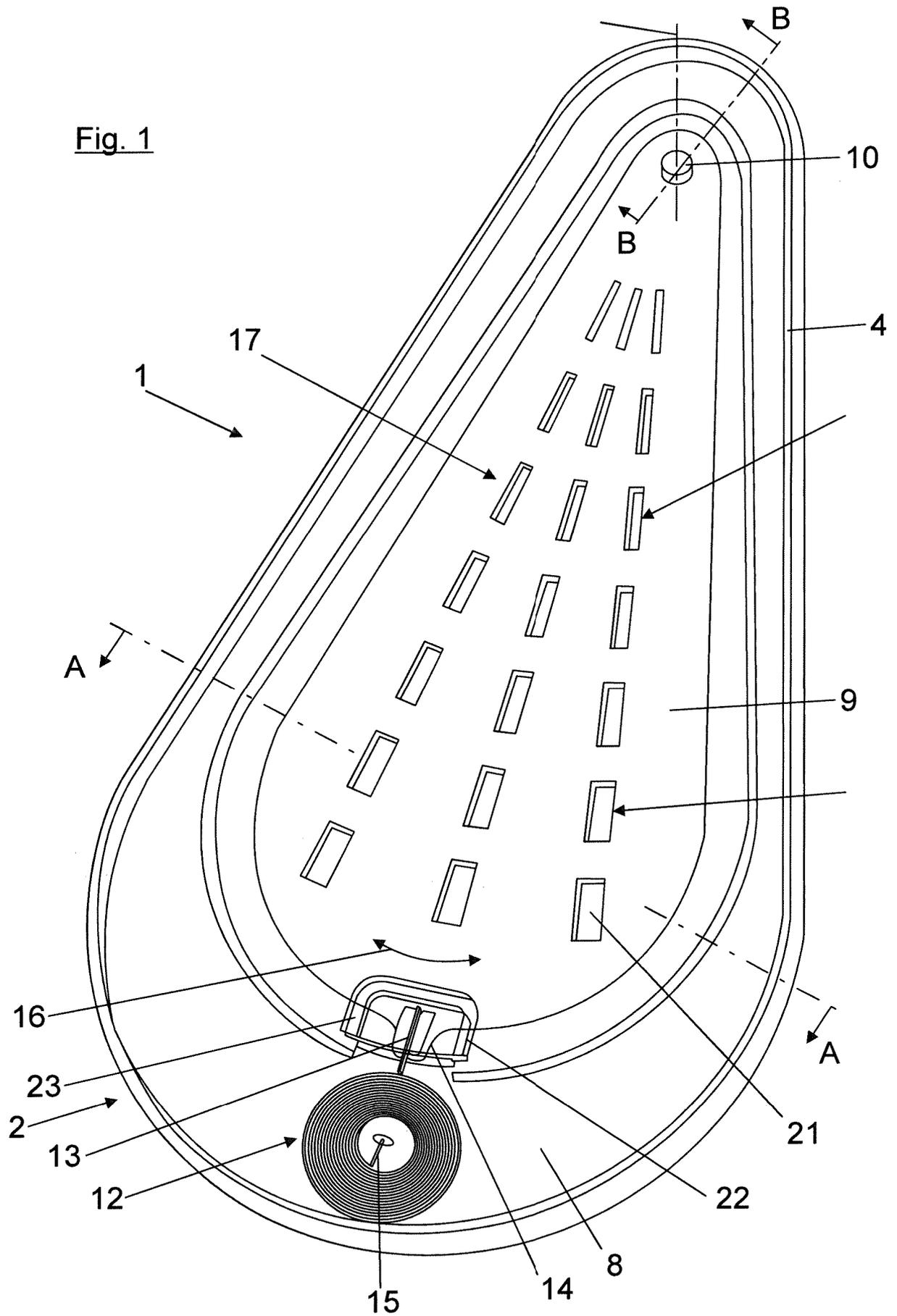
**characterised in that**

the housing (2) has at least one adjustably guided cover element (9) which is automatically and temperature-dependently adjustable by means of a temperature-dependently actuatable actuator (12) between a closed position (26), in which the at least one housing-outflow opening (18) is closed by means of the cover element (9) in order to prevent fragrance and/or active substance (7) from escaping from the housing (2), and an open position (20), in which the at least one housing-outflow opening (18) is completely open or, in intermediate positions, partially

open in order for fragrance and/or active substance to escape by means of the cover element (9).

20. Method according to claim 19, **characterised** in that the actuator (12) adjusts the cover element (9) into the closed position (26) when a defined lower temperature threshold is reached or undershot and adjusts it into the open position (24) when a defined upper temperature threshold is reached which has a higher temperature than the lower temperature threshold, wherein at temperatures in the range between the lower temperature threshold and the upper temperature threshold an adjustment of the cover element (9) into intermediate positions takes place with the at least one housing-outflow opening (18) being partially open.

Fig. 1



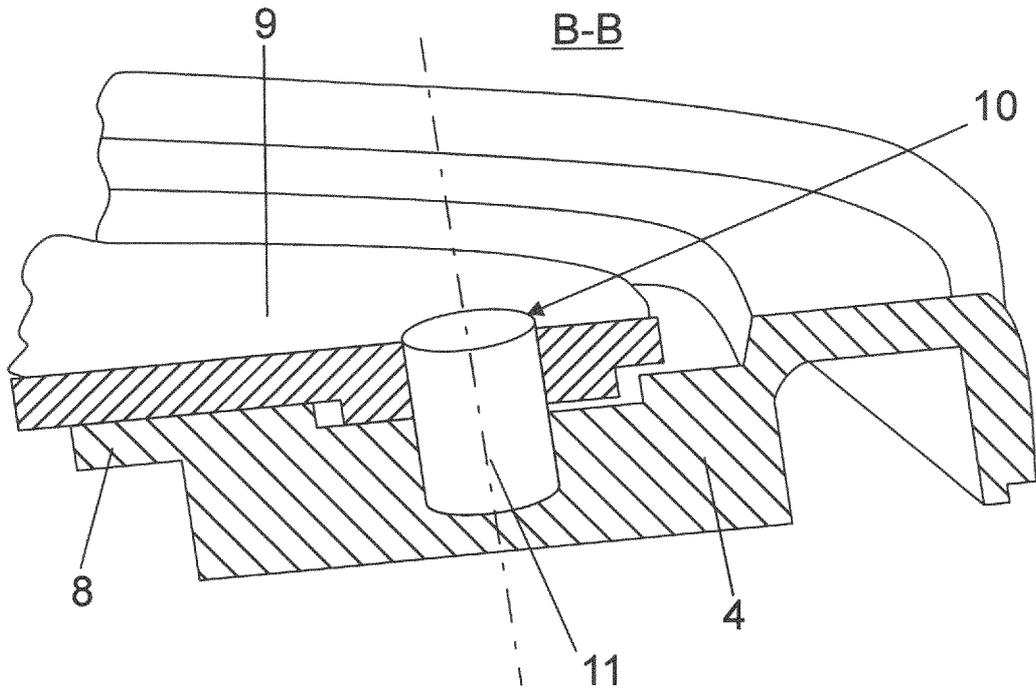


Fig. 2

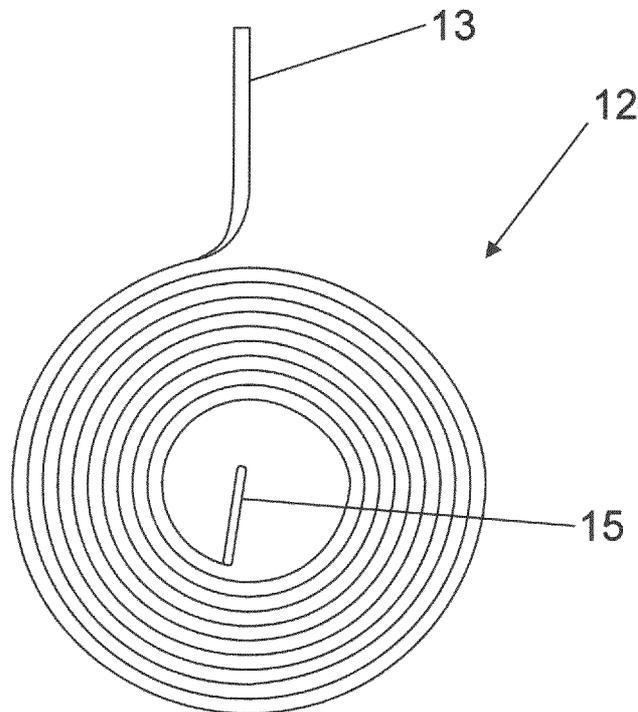


Fig. 3

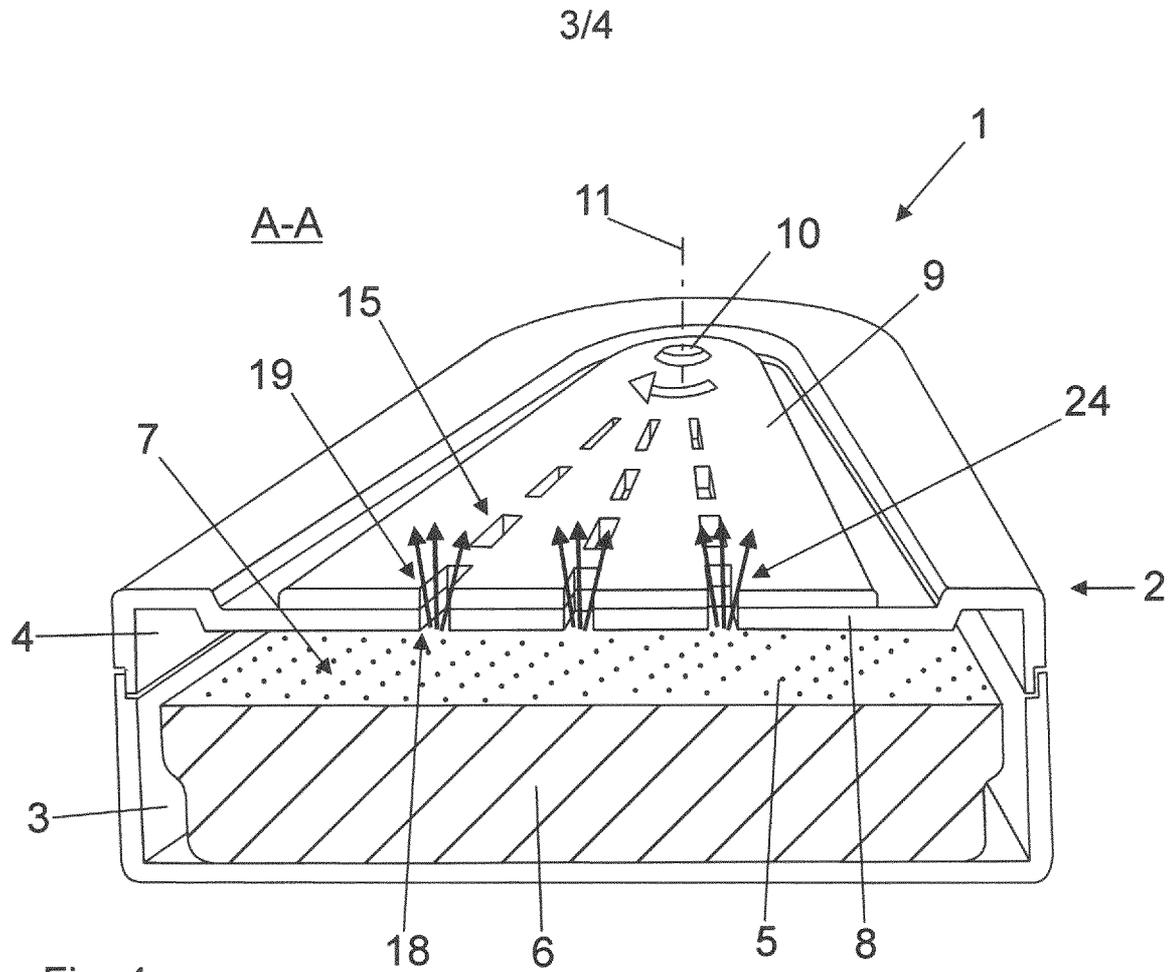


Fig. 4

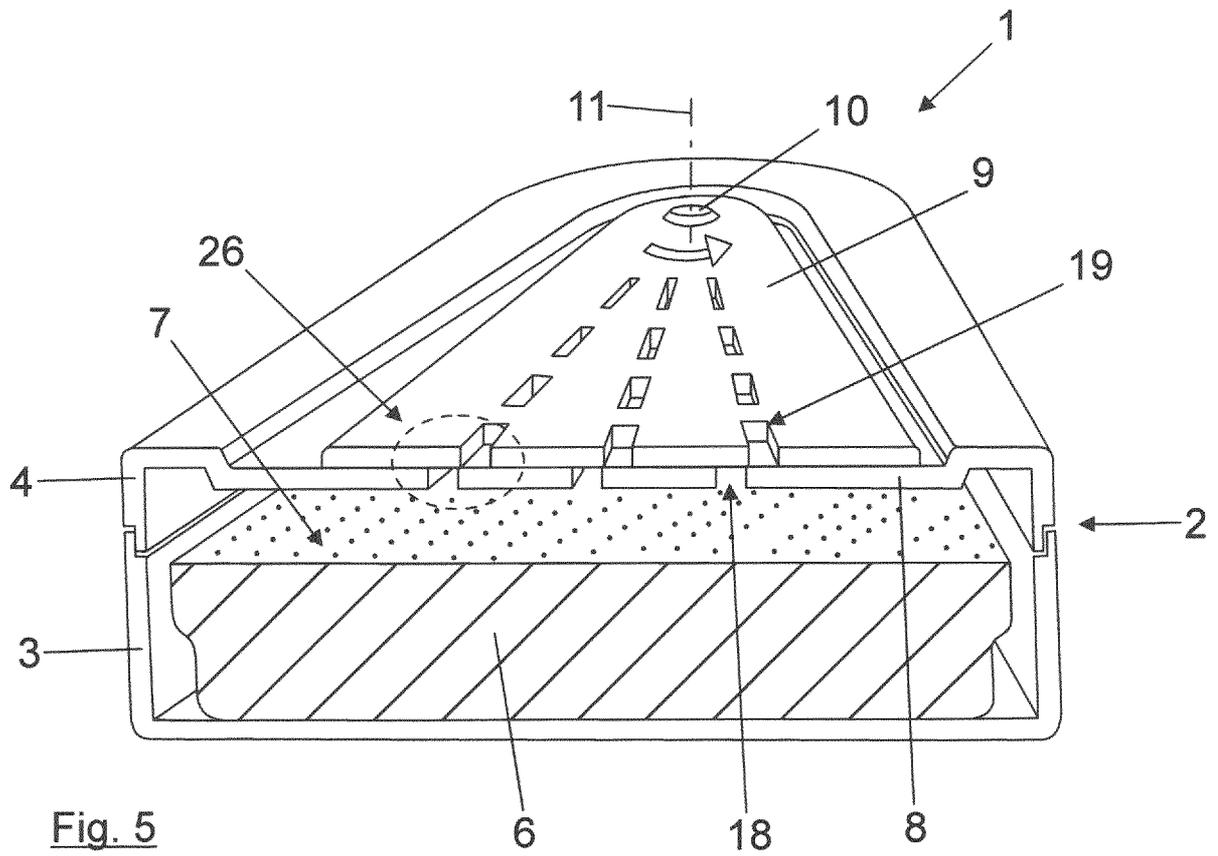
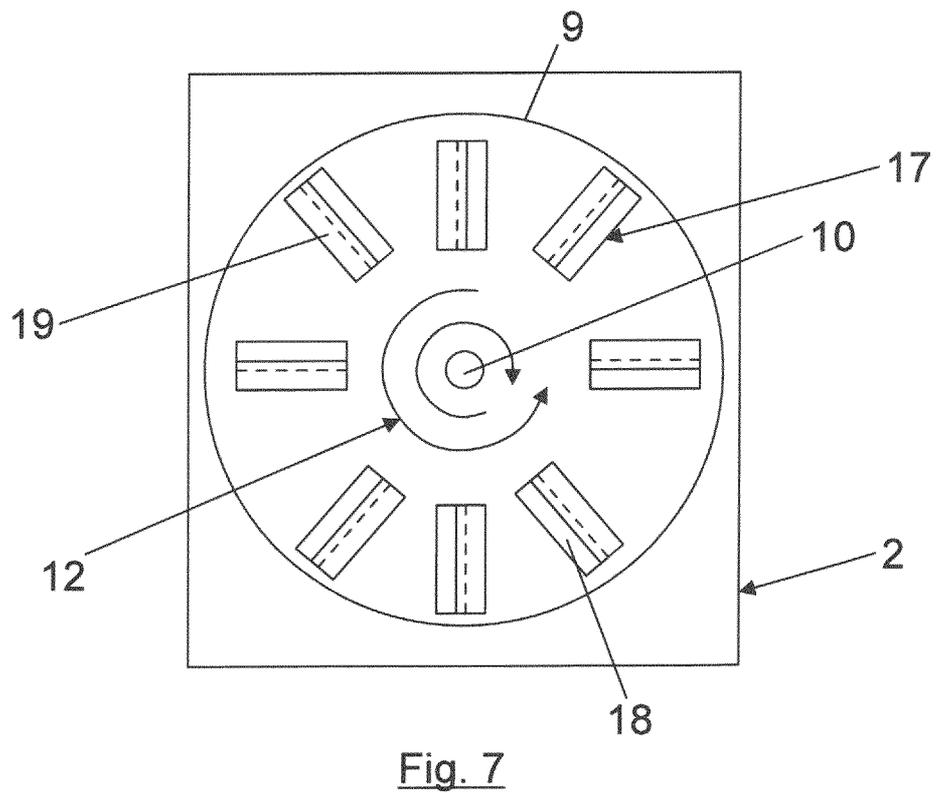
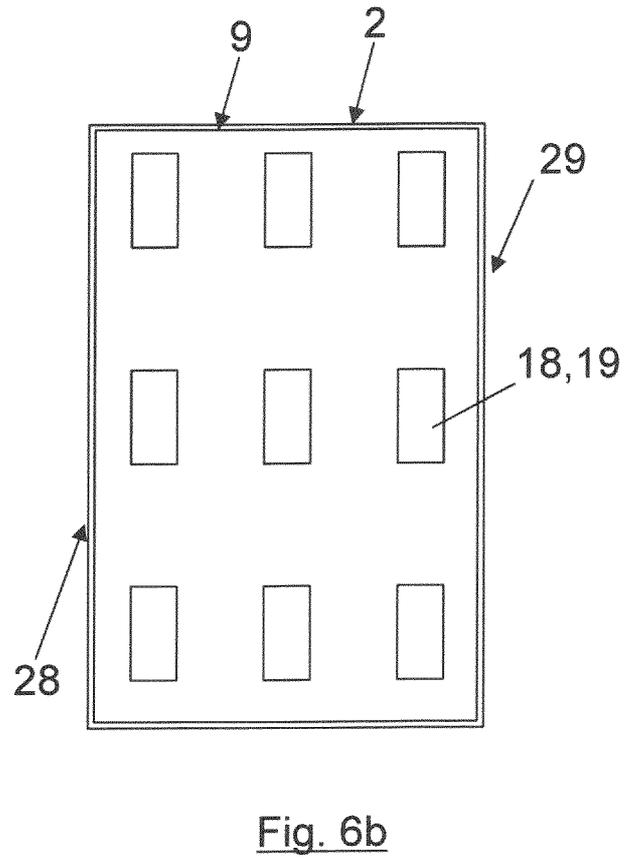
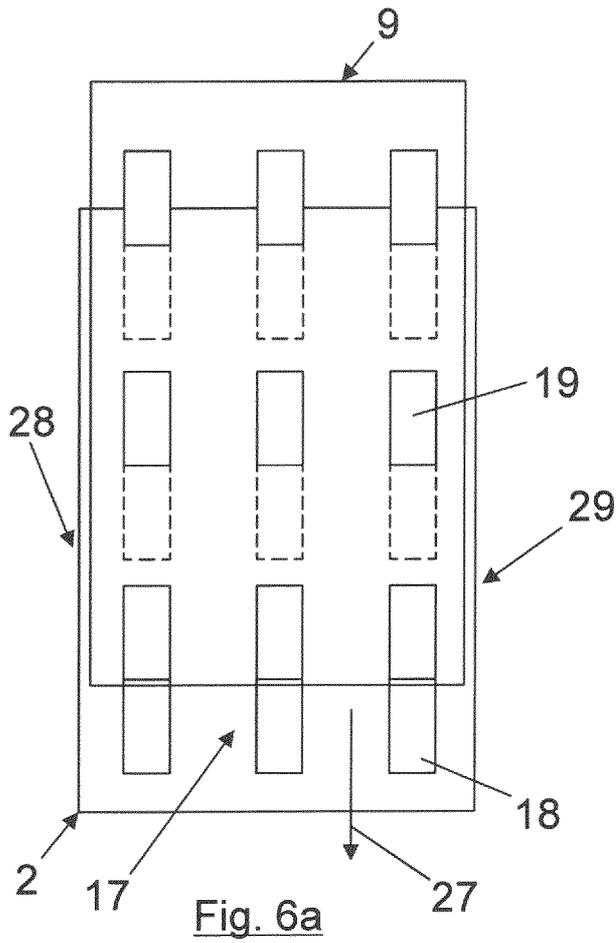


Fig. 5



# INTERNATIONAL SEARCH REPORT

International application No  
**PCT/EP2023/057900**

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> <b>INV. A61L9/12 B60H3/00 A01M1/20 F24F8/50 F24F13/10</b> <b>ADD.</b>				
According to International Patent Classification (IPC) or to both national classification and IPC				
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) <b>A61L B60H F24F A01M</b>				
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched				
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  <b>EPO-Internal</b>				
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>				
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
<b>X</b>	<b>WO 2008/012613 A2 (QUEST INT SERV BV [NL]; TRAAS PETRUS CORNELIS [NL]) 31 January 2008 (2008-01-31)</b>  <b>Figures: 1-4</b> page 1, lines 2-3 page 2, lines 11-12 page 7, lines 17-25 page 1, lines 24-25 page 3, line 25 page 6, lines 9-10  -----	<b>1-3, 5, 7-10, 12-17, 19, 20</b>		
<b>X</b>	<b>JP 2003 299721 A (MATSUSHITA ELECTRIC IND CO LTD) 21 October 2003 (2003-10-21)</b> <b>Figures: 2, 14</b> <b>Paragraphs: 0001, 0039, 0033, 0065, 0064</b> <b>Claims: 2</b>  ----- -/--	<b>1, 3-11, 19, 20</b>		
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"><input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C.</td> <td style="width: 50%; border: none;"><input checked="" type="checkbox"/> See patent family annex.</td> </tr> </table>			<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C.	<input checked="" type="checkbox"/> See patent family annex.
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C.	<input checked="" type="checkbox"/> See patent family annex.			
* Special categories of cited documents :				
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family			
Date of the actual completion of the international search	Date of mailing of the international search report			
<b>9 October 2023</b>	<b>16/10/2023</b>			
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer  <b>Accettola, Francesca</b>			

## INTERNATIONAL SEARCH REPORT

International application No  
PCT/EP2023/057900

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>US 2007/290066 A1 (MCGEE THOMAS [US] ET AL) 20 December 2007 (2007-12-20)</p> <p>Figures: 1 Paragraphs: 0001, 0009-0011, 0004 Claims: 3</p> <p>-----</p>	1-3, 5, 7, 15-17, 19, 20
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A	<p>JP 2004 230087 A (YOSHINO KOGYOSHO CO LTD) 19 August 2004 (2004-08-19)</p> <p>Figures: 4</p> <p>-----</p>	18

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Information on patent family members

International application No <b>PCT/EP2023/057900</b>
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		<b>EP 1928510 A2</b>	<b>11-06-2008</b>
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		<b>WO 2007036062 A2</b>	<b>05-04-2007</b>
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		<b>JP 2004230087 A</b>	<b>19-08-2004</b>