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(54) **FINGER RING PROVIDED WITH AN INTEGRATED CIGARETTE LIGHTER**

(57) A costume jewellery or jewellery item suitable for the use as a cigarette lighter, comprising a ring and a case wherein a battery and a lighting unit powered by that battery are housed: in particular, that ring has suit-

able dimensions so that it can be worn on a finger of a hand; a kit comprising that costume jewellery or jewellery item and a recharging station for the battery of that item are also described.

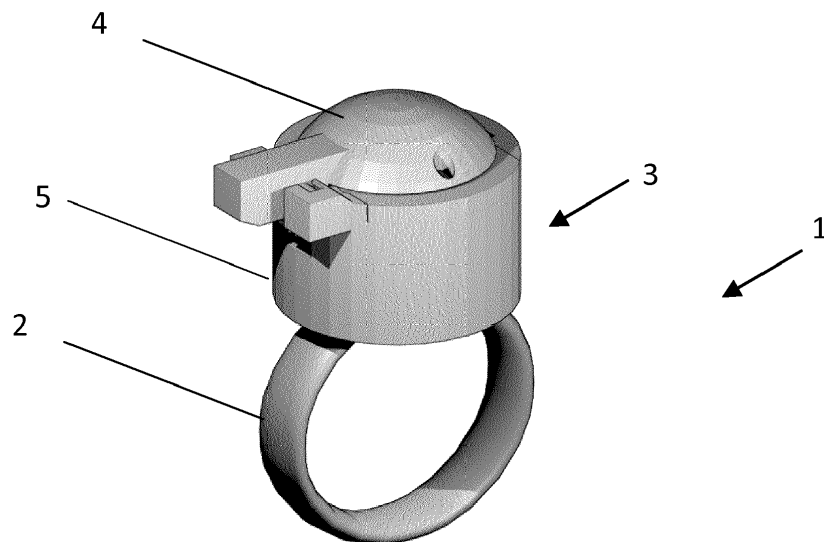


Fig. 1

Description

Field of application

[0001] The present invention relates to the technical field of small goods for personal ornament, be it precious or not.

[0002] In particular, the invention relates to a costume jewellery or jewellery item also having at the same time the function of a cigarette lighter or lighter, particularly intended to be worn on the finger of a hand.

Prior art

[0003] The request to develop devices and items of commercial nature with a given practical function, but which meet at the same time the aesthetic requirements of the modern consumer, is always topical.

[0004] On the other hand, it should be considered that those requirements are also accompanied by an attention of the consumer to the issue of environmental sustainability, according to which the production and the marketing of reusable and/or rechargeable items is preferable.

[0005] In the field of portable lighters and cigarette lighters, that search results in lighters and cigarette lighters which are no more disposable, but rather rechargeable, be they made of plastic material or, as it occurs more rarely, of metal.

[0006] As a matter of fact, lighters of plastic material are widely spread, which are capable of easily producing a fuel-fed flame, commonly liquefied oil gas, and lighted by rubbing a wheel on a flint or through a piezoelectric technology.

[0007] Beyond the quite understandable risks to safety, especially in environments where the use of open flames is expressly contraindicated, those devices - although they are mostly arranged for recharging through a valve which is placed at the bottom of the central body thereof - are commonly used by the user until the fuel reserve is used up and then thrown away, or simply kept, for example as collectibles, without being used anymore to the purpose which they were produced for.

[0008] That practice is partly discouraged when the consumer uses lighters made of metal, such as the typical stainless-steel rechargeable lighters and fed by a gasoline mixture, produced by a very famous American company since the '30s.

[0009] As a matter of fact, either because of the greater capital to be invested for the purchase, or because of the greater consumer's affection, especially due to the objective and appealing widely-customizable aesthetics, more likely these latter items are constantly recharged and used for a long time.

[0010] On the other hand, lighters made of metal also suffer from the drawback that they can be lost, for example, in the handbag or in the coat pockets, or left in the places where spending most of the time, such as home

or office.

[0011] In the attempt to solve the above-listed drawbacks, already at the beginning of the last century cigarette lighters in the form of a ring to be worn on the finger were developed, such as for example the one described in the US patent US 2242394. The device at issue is configured as a ring having a main portion capable of housing a finger, which ends in a top comprising a door. The latter is hinged to the underlying upper part of the top and can be opened, so as to access the fire point to light a cigarette.

[0012] That device has a certain convenience of use, in particular it is easily usable by the consumer when worn on the hand.

[0013] However, the device at issue has an obsolete lighting technology, providing the use of a movable element to be manually operated, so as to be able to create a friction on a flint and trigger the combustion of the fluid absorbed in a wick of absorbent material.

[0014] Other similar devices developed more recently are known in the art, such as for example the one described in the Chinese patent application CN103542425: that device is fed by liquefied gas, like the commonest portable lighters, and it has a traditional operation by rubbing a movable element on a flint as well.

[0015] On the other hand, like all the lighter typologies discussed up to now, this latter device has a certain discomfort when filling the fuel tank. Moreover, it must be considered that the modern consumer neither has any familiarity with inflammable liquids or gases, nor appreciates handling this type of substances.

[0016] The need to develop a device which can solve the drawbacks and the problems regarding the devices of the same category with reference to the prior art is thus particularly felt.

[0017] As a matter of fact, in view of the above-discussed prior art, the problem underlying the present invention was therefore to provide a portable cigarette lighter which was immediately usable by the user when needed, and which was at the same time characterized by an improved functionality and by a compact layout, and which could be recharged easily and handily by the modern consumer without resorting to handling inflammable fluids as well.

Summary of the invention

[0018] Such a problem was solved by providing a costume jewellery or jewellery item suitable for the use as a cigarette lighter, comprising a case and a ring, connected to that case, the latter comprising in turn a central body having an internal cavity, opened by an opening defined by a peripheral edge, and a door movable between a closed position, wherein it substantially covers the above-mentioned opening, and an open position wherein it is spaced apart from that opening, wherein in that internal cavity a lighting unit and a battery for supplying power to said lighting unit are housed, the latter being

directly accessible from the outside when the door is in the open position, wherein said ring is an element comprising a hole with such dimensions that it can be worn on the finger of a hand.

[0019] The costume jewellery or jewellery item according to the present invention is at the same time both an object of decorative nature, to be worn on the finger or on the neck, for example letting a necklace slide in that ring and wearing it like this by way of a pendant, both an apparatus capable of performing a practical function, i.e. lighting cigarettes or the like in a functioning way.

[0020] In this sense, as it will be explained in a way below with reference to the detailed description, the user can bring the item close to the face and open the door of the case, accessing the opening of the cavity of the central body, and being thus able to bring the cigarette in contact with the lighting unit, which is directly exposed.

[0021] Furthermore, just because the lighting unit is made accessible only at the time of opening the door, the useless exposition of that unit is avoided: an expedient of this type is first of all advantageous for the safety of the item according to the invention, moreover the fact that possible residual combustion products accumulated in proximity to the lighting unit are visible and dispersed is avoided.

[0022] Moreover, that battery, as well as any element possibly contained in the cavity of that central body, is accessible to the user and, thus, easily handleable by the latter. That possibility is certainly useful in case of malfunctions of the battery or of those possible elements. As a matter of fact, malfunctions can often occur in case of discharge of that battery or following the normal wear of the parts composing the item according to the present invention.

[0023] According to the present invention, the term "ring" means a piece of decorative small goods for personal ornament having a circular shape with dimensions such that it can be worn on the finger of a hand, defining in particular an internal space having a diameter (d) with dimensions such that the finger of a hand can be easily slipped therein and, at the same time, such that it can comfortably fit on that finger and it cannot be unintentionally slipped off.

[0024] Pursuant to the present invention, the term "circular" can also refer to a mechanical element having the shape of an aureole, of a coil, of a helix or of a spring.

[0025] More precisely, the diameter d of the ring can have dimensions comprised between 1.3 cm and 2.3 cm, preferably between 1.56 cm and 2.19 cm, more preferably between 1.72 cm and 2.15 cm.

[0026] According to a different aspect of the present invention, that case has a height h, a width 1 and a depth p, wherein that height h, that width 1 and that depth p have respectively dimensions being lower than 1.5 times those of the diameter d of the above-mentioned ring.

[0027] As a matter of fact, a functioning advantage of the item according to the present invention is to have a case of decidedly reduced dimensions, especially refer-

ring to the above-mentioned length 1 and depth p.

[0028] Accordingly, both the costume jewellery or jewellery item according to the present invention having the above-mentioned feature can be worn in extreme comfort and convenience, without possible problems attributable to the size (which otherwise could occur in the event that the item case were much more bulky with respect to the ring), both the user must not give up the real technical functionality of that item, i.e. lighting cigarettes or substitutes in an easy and efficient way (an overly bulky case could hinder the item handiness, for example, in the act of opening the door).

[0029] According to an embodiment of the present invention, that battery is fully housed in that internal cavity of the case.

[0030] In accordance with the embodiment of the preceding paragraph, since all the elements contained in the internal cavity of that central body of the case are accessible to the user, in case of battery malfunctions, the latter can be easily collected and removed from that internal cavity to be then repaired and repositioned in place into that internal cavity, or to be replaced with a similar perfectly-functioning battery.

[0031] According to a different embodiment of the present invention, that battery is partially housed in the internal cavity of that central body of the case.

[0032] Preferably, that ring partially comprises that battery and that battery can have a substantially curved shape.

[0033] Specifically, that battery has a first portion, partially housed in the above-mentioned internal cavity of that central body of the case and it comprises a second portion partially comprised in turn in that ring.

[0034] More preferably, that battery has a substantially curved shape and it actually conforms to the above-mentioned ring.

[0035] Alternately, in a likewise preferred way, that battery has a substantially curved shape and that ring has in turn an internal cavity wherein that battery is partially housed.

[0036] Specifically, in accordance with the embodiment of the preceding paragraph, that battery is partially housed in the above-mentioned internal cavity of that central body of the case and partially housed in that internal cavity of the ring.

[0037] In an absolutely preferred way, that central body of the case has at least one hole in the central body to allow that battery to be inserted into that internal cavity of the case.

[0038] Advantageously, during a step of assembling the device according to the present invention, once the above-mentioned curved battery provided, it will be possible to insert the latter into that hole of the central body, so that it can be partially housed in the above-mentioned internal cavity of the ring and, at the same time, it can contact the above-mentioned lighting unit.

[0039] Advantageously, when that battery is only partially housed in the internal cavity of that central body of

the case, the case dimensions can be very small.

[0040] In particular, when that battery is only partially housed in the internal cavity of that central body of the case, the height h of the case is much reduced with respect to the height which the case would have in an embodiment wherein that battery is fully housed in the above-mentioned internal cavity of the central body of the case.

[0041] In an absolutely preferred way, the case and the ring of the item according to the present invention can be permanently connected, more preferably that case and that ring are formed in a single piece or are connected by welding.

[0042] Alternately, the case and the ring of the item according to the present invention can be connected by a connection of the removable type, more preferably that connection can be in the form of a snap-fit coupling, a shape coupling or a screw coupling.

[0043] When the connection between the case and the ring of the item according to the present invention is of the removable type, the case can be easily detached from the ring, for example facilitating the removal of that battery in the event that the latter looks like a curved battery only partially comprised in the above-mentioned internal cavity of the central body of the case, as shown above in relation to a preferred embodiment of the present invention.

[0044] Advantageously, when the connection between the case and the ring of the item according to the present invention is of the removable type a more compact packaging of the item can be ensured (for example, by packaging the item in the form of a detached case and ring), and/or more simply allowing the user to customize the item; in particular, the user can customize the item by replacing the case, which can be provided in a plurality of different models, so as to satisfy the personal taste of each single user.

[0045] According to an aspect of the present invention, that case can comprise a diaphragm with such dimensions that it can be positioned between that central body and that door, without hindering the closing of the latter. That diaphragm has a primary surface and a opposite secondary surface, as well as a window at the centre thereof consisting of a space, preferably having a circular cross-section, which passes through that diaphragm from the primary surface to the secondary surface. That window has a diameter d' with sufficient dimensions for the passage of a cigarette or the like.

[0046] More precisely, the diameter d' of the window of the above-mentioned diaphragm can have dimensions comprised between 0.7 cm and 1.3 cm, preferably between 0.7 cm and 1.1 cm.

[0047] In short, that diaphragm carries out the function of a "lid" of the cavity of that central body, wherein, as disclosed, different elements can be contained, among which the lighting unit and the battery. Those elements, by means of the diaphragm at issue, can stay more easily in place according to a predetermined arrangement.

[0048] Furthermore, that diaphragm does not hinder at all the operativeness of the device itself, i.e. the possibility to bring a cigarette close to the lighting unit contained inside the cavity of that central body, so as to allow that cigarette to be lighted.

[0049] On the contrary, it must be said that the diaphragm at issue has the additional technical function of facilitating, through the above-mentioned window, the insertion of the cigarette into the cavity of the central body, serving as a guide and directing it towards the lighting unit. Therefore, according to this further aspect of the invention the use of the device by the user is facilitated.

[0050] Preferably, the central body of the case comprises a plurality of housings in the form of concavities located on the above-mentioned peripheral edge, and at the same time that diaphragm comprises, on that secondary surface, a plurality of convexities having a complementary shape to those housings and corresponding thereto, so as to allow a shape coupling between those housings and those convexities. For example, that shape coupling can be a mating joint.

[0051] According to this latter embodiment of the device according to the invention, the above-mentioned diaphragm can be easily positioned on the peripheral edge of the central body and removably attached thereto by means of that shape coupling.

[0052] In this way, on the one hand the diaphragm can effectively perform its function of a "lid" of the cavity of the central body, being firmly coupled to the peripheral edge thereof, on the other hand it can be easily removed by the user, so as to access the underlying cavity and handle the elements contained therein.

[0053] According to a different aspect of the present invention, the above-mentioned lighting unit can comprise a heating element in the form of a flattened coil made of metal material. For example, in an absolutely preferred way, that flattened coil can be made of a material selected from the group consisting of a tungsten alloy, a chromium and nickel alloy, and an iron, chromium and aluminium alloy (Kanthal). More preferably that flattened coil can be made of a chromium and nickel alloy (Nichrome) comprising 20% of chromium and 80% of nickel in weight on the total weight of the alloy.

[0054] In accordance with the present invention, when electricity is fed to that flattened coil, the latter behaves as a resistor, heating and dissipating power in the form of heat. Very advantageously, this aspect of the item according to the present invention, allows the use of it as a cigarette lighter also in situations where the use of open flames, which in the present case are not generated, is to be avoided.

[0055] In a likewise preferred way, the above-mentioned internal cavity of the central body of the case comprises an electronic support to interconnect that lighting unit and that battery to each other, for example a printed circuit of the PCB type (Printed Circuit Board).

[0056] According to a further aspect of the present invention, the central body can comprise, at the above-

mentioned peripheral edge, means for connecting the central body to that door.

[0057] Preferably, those means for connecting the central body to that door are connecting means of the pivotable type. Specifically, those pivotable connecting means allow the user to open that door according to a pivotable movement. Advantageously, that pivotable movement can be easily performed with the thumb of the same hand which wears the item according to the present invention (being an item like the one according to the present invention worn by the user on a finger of the hand normally different from the thumb, selected among the middle finger, the forefinger or the third finger).

[0058] More preferably, said connecting means of the pivotable type are a hinge.

[0059] More preferably, those connecting means of the pivotable type of the central body to that door comprise at least one support and that door of the case comprises a support arm, wherein that support arm is couplable to those pivotable connecting means of the central body, so as to facilitate the opening of the door from a closed position to an open position, by a pivotable movement.

[0060] More preferably, the above-mentioned door of the case comprises a substantially hemispherical dome and a support arm, laterally protruding with respect to that dome and couplable to the central body by the above-mentioned connecting means of the pivotable type.

[0061] Most preferably, those pivotable connecting means of the central body to that door comprise a first support and a second support, both vertically and laterally protruding to the outside of the peripheral edge, i.e. in an opposite direction with respect to the above-mentioned opening of the central body. More preferably that first support comprises a first recess and that second support comprises a second recess, specular and longitudinally aligned with that first recess.

[0062] Preferably, the above-mentioned dome has a concave surface on the side of the door turned towards the central body and a convex surface on the opposite side of the door. More particularly, that concave surface determines a dome concavity which interposes between the central body and the dome of the door, when the latter is in the closed position.

[0063] Advantageously, the last aspect being described of the item according to the invention ensures that there is a safety distance between the lighting unit and the dome, when the door is in the closed position, so that the latter can be made both of metal material and of plastic material.

[0064] Preferably, that support arm has a first vertically-extending side and a second vertically-extending side, and it comprises as well a first pin, protruding from that first side, and a second pin, protruding from that second side, specular and aligned with that first pin, wherein that first pin is couplable by shape coupling to that first recess of that first support of the central body: at the same time, that second pin is couplable by shape coupling to that second recess of that second support of the central body,

so as to facilitate the opening of the door, from a closed position to an open position, by a pivotable movement. In particular, that pivotable movement of rotary nature is constrained by the system comprising the first support and the second support of the main body, the support arm of the door, as well as by the main body itself whereon the door abuts from above, at the time of closing from an open position to a closed position.

[0065] Preferably, the item according to the present invention comprises a switch capable of closing a circuit between that electronic support and that battery (wherein that electronic support contacts the above-mentioned lighting unit).

[0066] More preferably, the above-mentioned electronic support comprises an extension of flexible material and capable of conducting electricity, preferably a metal material, and partially protruding from the internal cavity of the central body as well. At the same time a tab is connected to the above-mentioned battery, also made of a material capable of conducting electricity, preferably a metal material, and partially protruding from the cavity of the central body, wherein that extension and that tab are positioned so that, when the door is in the open position, the above-mentioned support arm abuts from above on that extension, which undergoes an elastic deformation and contacts the underlying tab.

[0067] In other words, the above-mentioned switch is shaped in that extension of flexible material of that electronic support and in that tab connected to the above-mentioned battery.

[0068] In particular, the latter embodiment being described allows the following advantages to be reached.

[0069] First of all, as it will be better illustrated with reference to the detailed description, when the extension of the above-mentioned electronic support contacts the underlying tab, the electric circuit - consisting of the lighting unit, electronic support and battery system - is closed, causing electricity to be sent from the battery to the electronic support and, thus, to the overlying lighting unit: it results that the lighting unit heats so as to allow the lighting of a cigarette.

[0070] Furthermore, once the lighting of the cigarette concluded, the support arm of the door is preferably pushed upwards as a result of the elastic return force exerted by the extension of the electronic support (previously deformed during the opening of the door), which takes consequently the behaviour of a spring.

[0071] Therefore, the heating of the lighting unit occurs simultaneously with a movement of opening the door of the case; vice versa, at the time of closing the door of the case, the lighting unit is turned off.

[0072] Ultimately, the present invention allows a costume jewellery or jewellery item suitable for the use as a cigarette lighter to be provided, where the opening of that door and the heating of the lighting unit can be easily performed by a single movement and simultaneously: for example, if the item at issue were worn on the forefinger, middle finger, third finger or little finger of the hand, by

exerting a slight force with the thumb on the above-mentioned support arm of the door.

[0073] Furthermore, the item according to the present invention can be made so as to be water resistant. That condition can occur by ensuring that the contact points between the various elements composing it are water-tight: for example, the juncture between the door and the underlying central body, and the means of connection between the first and the second as well, must be made so as to ensure a tight insulation of the cavity of the central body.

[0074] According to a further aspect of the present invention, the above-mentioned battery can be a rechargeable battery, preferably of the type which is rechargeable by contact or rechargeable through electromagnetic induction.

[0075] More preferably, the above-mentioned battery is a rechargeable battery of the lithium-polymer type, known as Li-Poly or more commonly LiPo. Most preferably, that battery is a curved battery of the lithium-polymer type.

[0076] In a likewise preferred way, the above-mentioned battery is a solid-state rechargeable battery.

[0077] According to a particular embodiment, the above-mentioned ring has the form of a coil and, at the same time, the above-mentioned battery is comprised in that ring; in accordance with this embodiment, the ring serves as an antenna for the wireless recharge of the battery itself.

[0078] According to a particular embodiment of the item according to the invention, a central body comprising a diaphragm comprising in turn a plurality of holes can be arranged, wherein each single hole defines a free space which passes through that diaphragm, as well as a door comprising a dome comprising in turn a plurality of dome holes, wherein each single dome hole defines a gap which passes through that dome, where, when the door is in the closed position, each single diaphragm hole is vertically aligned with a corresponding dome hole.

[0079] Preferably, the above-mentioned diaphragm can comprise a first hole and a second hole, wherein that first hole and that second hole individually define a gap which passes through that diaphragm, i.e. from that first surface to that second surface of the diaphragm; at the same time, the above-mentioned dome itself of the door comprises a first dome hole and a second dome hole, wherein that first dome hole and that second dome hole individually define a gap which passes through that dome from the above-mentioned convex surface to the above-mentioned concave surface, and wherein, when the door is in the closed position, that first diaphragm hole is vertically aligned with that first dome hole and that second diaphragm hole is vertically aligned with the second dome hole.

[0080] In particular, the latter embodiment allows to contact elements contained in the cavity of the central body, for example through a pair of parallel metal contacts connectable to an electric power source, capable

of contacting the above-mentioned battery, so as to recharge the latter.

[0081] More particularly, when that pair of parallel metal contacts is inserted into the item according to the invention, each single contact first passes through one of the two holes of the dome of the door, then the diaphragm hole vertically aligned with the latter, finally, going laterally beyond the lighting unit, it contacts the battery, preferably by means of the above-mentioned printed circuit.

[0082] According to a further aspect of the present invention, the above-mentioned problem was solved by providing a kit comprising a costume jewellery or jewellery item suitable for the use as a cigarette lighter like the above-described costume jewellery or jewellery item, comprising a case, comprising in turn a central body where a battery of the rechargeable type is contained, and a recharging station to recharge that battery.

[0083] Preferably, the recharging station of the above-mentioned kit can comprise an electric plug bearing a pair of parallel metal contacts, capable of allowing an electric contact to be transmitted between said recharging station and the above-mentioned battery by passing through that first dome hole and that second dome hole, so as to recharge the battery.

[0084] In a likewise preferred way, the recharging station of the above-mentioned kit can be a recharging station through electromagnetic induction, i.e. wireless.

[0085] The features and advantages of the present invention will be more apparent from some embodiments thereof set forth herebelow by way of non-limiting examples, also with reference to the attached figures.

Brief description of the figures

[0086]

Figure 1 depicts a side perspective view of an embodiment of the costume jewellery or jewellery item according to the present invention, when the door of the case is in the closed position.

Figure 2 depicts a side perspective view of the same embodiment depicted in Figure 1 of the item according to the present invention, when the door of the case is in the open position.

Figure 3 depicts a side perspective view of the same embodiment depicted in Figure 1 in a vertical cross-section, when the door is in the closed position.

Figure 4 depicts a side perspective view of the same embodiment depicted in Figure 1 in a vertical cross-section, when the door is in the open position.

Figure 5 depicts a side perspective view of the same embodiment depicted in Figure 1 of the item according to the present invention in an exploded view.

Detailed description

[0087] With reference to Figure 1, the item 1 comprises a case 3 and a ring 2, connected to the case 3; the case 3 comprises in turn a central body 5 having an internal cavity 8, opened by an opening 6 defined by a peripheral edge 7, and a door 4.

[0088] More particularly, with reference to Figure 3, a lighting unit 9 and a battery 10 for supplying power to the latter are housed in the internal cavity 8. Instead, as it is evident from Figure 2, the door 4 is movable between a closed position wherein it substantially covers the opening 6, and an open position, wherein it is spaced apart from the opening 6, where the lighting unit 9 is directly accessible from the outside of the central body 5, when the door 4 is in the open position.

[0089] The lighting unit 9 comprises a heating element in the form of a flattened coil made of chromium and nickel alloy (Cr, 20%; Ni 80%, in weight on the total weight). That heating element is not depicted in the figures since absolutely conventional.

[0090] The battery 10 is a rechargeable battery of the CP1654 A3 type having a slightly lower diameter with respect to the diameter of the cavity 8.

[0091] The ring 2 has a diameter d with such dimensions that it can be easily slipped on a finger of a hand; as a specific example, the diameter d of the ring has dimensions equal to 2 cm.

[0092] Furthermore, the case 3 has a height h , a width l and a depth p , where the height h , the width l and the depth p have respectively dimensions lower than one and a half times the diameter d of the ring 2.

[0093] As it can be deduced from Figure 3, the case 3 and the ring 2 of the item 1 depicted in the figures are permanently connected, more precisely they are formed as one piece.

[0094] The case 3 comprises a diaphragm 11 too with such dimensions that it can be positioned between the central body 5 and the door 4, without hindering the closing of the latter, as it is evident from Figure 3.

[0095] The diaphragm 11 has a primary surface 12 and an opposite secondary surface 13.

[0096] At the same time, the diaphragm 11 further comprises a window 15, positioned at the centre thereof and substantially circular, and concentric with respect to the external periphery 16 of the diaphragm 11 itself as well. Furthermore, the window 15 has a diameter d' , having sufficient dimensions for the passage of a cigarette: as a specific example, the diameter d' of the window 15 measures 0,9 cm.

[0097] By more carefully analysing the central body 5 of the case 3 illustrated in Figure 5, it can be noted how in the peripheral edge 7 there are four housings 20 in the form of concavities from the circular longitudinal cross-section, having a prefixed height.

[0098] With reference to the diaphragm 11 illustrated in Figure 5, it can be noted that four convexities 19 branch off from the lower surface 13 of the diaphragm itself, hav-

ing themselves a circular longitudinal cross-section and a prefixed height, i.e. a complementary shape to the housings 20 of the central body 5.

[0099] At the same time, the four housings 20 on the peripheral edge 7 are spaced apart by a prefixed distance and they are arranged according to a predetermined order so as to match the convexities 19 on the lower surface 13 of the diaphragm 11. As a matter of fact, that arrangement allows each convexity 19 to be inserted into each corresponding housing 20, making a joint shape coupling.

[0100] The diaphragm 11 is housed on the central body 5, by laying the lower surface 13 of the diaphragm 11 on the peripheral edge 7 of the central body 5, by inserting the convexities 19 into the housings 20.

[0101] Concerning the further elements which can be contained in the cavity 8 of the central body 5, from Figure 3 it can be noted that an electronic support 30 is inserted between the lighting unit 9 and the battery 10, capable of interconnecting the battery 10 to the lighting unit 9 and welded to the latter.

[0102] The electronic support depicted in the figures is a PCB printed circuit (Printed Circuit Board) with some of the units composing it in the form of miniaturized elements according to the SMD technology, among which a voltage regulator.

[0103] According to another aspect of the item 1 depicted in the figures, the central body 5 comprises, at the main edge 7, connecting means 50 for connecting the central body 5 to the door 4.

[0104] As it is evident from the figures, the connecting means 50 are embodied in a first support 50a and in a second support 50b, both vertically and laterally protruding to the outside of the peripheral edge 7. In particular, the first support 50a and the second support 50b vertically and laterally branch off from the peripheral edge 7 in a direction opposite to the cavity 8 of the central body 5, not hindering the accessibility to the cavity 8 through the opening 6 (see Figure 2).

[0105] A vertical cut 55 is obtained between the first support 50a and the second support 50b, which causes a break in the continuity of the peripheral edge 7 which delimits at the top the opening 6 of the cavity 8 of the central body 5.

[0106] More particularly, the first support 50a comprises a first recess 51a and the second support 50b comprises a second recess 51b, where the latter is specular and longitudinally aligned with the first recess 51a.

[0107] The first recess 51a and the second recess 51b have a substantially cylindrical shape.

[0108] At the same time, the door 4 of the case 3 comprises a substantially hemispherical dome 40 and a support arm 45, laterally protruding with respect to the dome 40, i.e. which branches off in an opposite direction with respect to the pole of the dome 40, the arm 45 vertically matches the connecting means 50 and is coupled thereto, being consequently also coupled to the central body 5.

[0109] Specifically, the dome 40 has a concave surface

42 on the side of the door 4 turned towards the central body 5, whereas it has a convex surface 41, clearly visible in Figure 3, on the opposite side of the door. The concave surface 42 is made so as to define a dome concavity 43 which interposes between the central body 5 and the dome 40 of the door 4, when the latter is in the closing position.

[0110] More in detail, the support arm 45 has a first vertically-extending side 46a and a second vertically-extending side 46b, opposite to the first side 46a.

[0111] The arm 45 also comprises a first pin 47a, protruding from the first side 46a and wherefrom it longitudinally branches off, and a second pin 47b, protruding from the second side 46b and wherefrom it longitudinally branches off. The first pin 47a is substantially specular and longitudinally aligned with the second pin 47b.

[0112] Furthermore, the first pin 47a is couplable by shape coupling to the first recess 51a of the first support 50a of the central body 5 and, at the same time, the second pin 47b is couplable by shape coupling to the second recess 51b of the second support 50b of the central body 5: in this way, as it is evident from Figure 2, a connection is made between the central body 5 and the door 4.

[0113] That connection, by virtue of the cylindrical shape of the recesses 51a and 51b, and of the complementary shape of the pins 47a and 47b as well, allows the door 4 to be effectively opened and closed, by a movement of the pivotable type.

[0114] According to a further aspect of the item 1 depicted in the figures, the electronic support 30 comprises an extension 31 of flexible material and capable of conducting electricity, partially protruding from the cavity 8 of the central body 5. In particular, as it is evident from Figure 3, the extension 31 occupies a part of the space determined by the cut 55 of the central body 5, longitudinally passing through it from the inside of the cavity 8 to the outside of the central body 5 of the case 3.

[0115] At the same time, the battery 10 is connected to a tab 60, itself of a material capable of conducting electricity, and protruding from the cavity 8 of the central body 5 as well and located below the extension 31 of the electronic support 30. In particular, as it is evident from Figure 3, the tab 60 itself occupies a part of the space determined by the cut 55 of the central body 5, longitudinally passing through it from the inside of the cavity 8 to the outside of the central body 5 of the case 3.

[0116] Furthermore, as it is evident from Figure 5, the central body 5 is made so as to limit - at the upper part of the cavity 8 - a quadrangular-cross-sectional recess; otherwise, at the lower part of that cavity, the central body 5 is made so as to limit a circular-cross-sectional recess. In this way, the battery 10 and the electronic support 30 are housed in the lower part of the cavity 8, whereas the lighting unit 9 is housed in the upper part of that cavity.

[0117] This particular conformation of the central body 5 allows furthermore the lighting unit 9, as well as the underlying electronic support 30 welded thereto, not to be rotated during the handling of the device 1 according

to the present invention.

[0118] Furthermore, that rotating movement is also prevented as a result of housing the extension 31 of the electronic support 30 and of the tab 60 in the cut 55 of the central body 5.

[0119] According to a last aspect of the item according to the invention depicted in the figures, the diaphragm 11 comprises a first hole 70a and a second hole 70b.

[0120] The first hole 70a and the second hole 70b individually define a gap which passes through the diaphragm 11. More precisely, the single spaces described by the holes 70a and 70b passes through the diaphragm 11 from the first surface 12 to the second surface 13.

[0121] At the same time, the dome 40 itself of the door 4 comprises a first hole 43a and a second hole 43b. In particular, the first hole 43a and the second hole of the dome 43b individually define a gap which passes through the dome 40 and, when the door 4 is in the closing position, the first hole 70a of the diaphragm 11 is vertically aligned with the first hole 43a of the dome 40, and the second hole 70b of the diaphragm 11 is vertically aligned with the second hole 43b of the dome 40 as well.

[0122] As described with reference to the summary, this latter aspect of the item 1 depicted in the figures allows the contact, for example of a pair of parallel metal contacts connected to an electric power source, with the printed circuit 30 and consequently with the underlying battery 10 connected thereto.

[0123] More particularly, that pair of parallel metal contacts contact the printed circuit 30 in a point wherein the upper surface 30a of the printed circuit 30 is not welded with the overlying lighting unit 9.

[0124] In accordance with the embodiment depicted in the figures, a mode of use of the item according to the present invention is described hereafter.

[0125] During the opening step, a slight pressure is applied onto the support arm 45, which starts a rotary movement constrained downwards, causing the lifting of the dome of the door connected thereto and making the lighting unit 9 accessible from the outside. The support arm 45 continues that movement until it abuts on the underlying extension 31 of the printed circuit 30.

[0126] As soon as the arm 45 abuts on the extension 31, the latter elastically deforms downwards contacting the tab 60 of the battery 30: as a result of the contact of these two elements, the circuit formed by the battery 10 together with the printed circuit 30 and the lighting unit 9 closes, so as to supply electricity to the latter, which suddenly heats until the heating element becomes incandescent.

[0127] The operation of opening the door and of lighting the lighting unit occur substantially simultaneously as a result of a single movement by the user, for example the displacement of the thumb onto the support arm 45 which serves as a lever (if the item 1 according to the invention is worn on the forefinger, on the middle finger, on the third finger or on the little finger, for example).

[0128] Once the door 4 opened, the user can put the

cigarette to his mouth and bring the end opposite to the filter close to the lighting unit 9. The cigarette is so lighted. As disclosed in the summary, the contact of the cigarette with the lighting unit 9 is facilitated by the window 15 shaped in the diaphragm 11.

[0129] Finally, it is sufficient to stop exerting that pressure onto the support arm 45 to cause an automatic failure of the power supply to the lighting unit 9 and a simultaneous closing of the door 4. The power failure occurs as a result of the detachment of the extension 31 from the tab 60, with the opening of that circuit. At the same time, the closing of the door is caused by the elastic force imparted by the extension 31 onto the arm 45: coming back in the rest position, the first pushes the second upwards, i.e. towards a closing position.

[0130] Furthermore, it must be said that, with particular reference to Figure 5, the item according to the present invention not only can be easily assembled by the producer, but it can be easily disassembled by the final user in the main constituent elements thereof too.

[0131] As a matter of fact, as disclosed above, should it prove necessary to replace one of the elements inserted inside the cavity 8, for example the battery 10, the user can perform that operation autonomously and very easily. With the aid of a small screwdriver or a nail file, it is sufficient to exert a weak pressure between the peripheral edge 7 and the diaphragm 11, for example through a slit 7a suitably arranged therein, to cause the detachment of the diaphragm 11 from the peripheral edge 7 and thus allow the content of the cavity 8 to be extracted therefrom.

[0132] Ultimately, as illustrated in the figures, the item 1 according to the present invention not only has a compact and functional structure, but moreover it shows a comfortable and simple operation too, as a result of the combination of the elements composing it suitably arranged to that purpose.

Claims

1. Costume jewellery or jewellery item (1) suitable for the use as a cigarette lighter, comprising a case (3) and a ring (2) connected to said case (3), wherein said case (3) comprises a central body (5) having an internal cavity (8), opened by an opening (6) defined by a peripheral edge (7), and a door (4), movable between a closed position wherein it substantially covers said opening (6) and an open position wherein it is spaced apart from said opening (6), wherein in said internal cavity (8) a lighting unit (9) and a battery (10) for supplying power to said lighting unit (9) are housed, said lighting unit (9) being directly accessible from the outside when the door (4) is in the open position and said ring being a circular-shaped element with such dimensions that it can be worn on the finger of a hand.
2. Costume jewellery or jewellery item (1) according to claim 1, wherein said battery (10) is partially housed in said internal cavity (8) of said central body (5) of said case (3), preferably said ring (2) partially comprising said battery and said battery having a substantially curved shape.
3. Costume jewellery or jewellery item (1) according to claim 1 or 2, comprising a diaphragm (11) having a primary surface (12) and an opposite secondary surface (13), wherein said diaphragm (11) comprises a window (15) at the centre thereof, preferably having a circular cross-section, said window having a diameter (d') with sufficient dimensions to allow the passage of a cigarette or the like, more preferably said diameter (d') has dimensions comprised between 0.7 cm and 1.3 cm.
4. Costume jewellery or jewellery item (1) according to any of the preceding claims, wherein said lighting unit (9) comprises a heating element in the form of a flattened coil made of metal material, preferably said flattened coil is made of a material selected from the group consisting of a tungsten alloy, a chromium and nickel alloy, and an iron, chromium and aluminium alloy, more preferably of a chromium and nickel alloy comprising 20% of chromium and 80% of nickel in weight on the total weight of the alloy.
5. Costume jewellery or jewellery item (1) according to any of the preceding claims, wherein said internal cavity (8) of said central body (5) comprises an electronic support (30) to interconnect said lighting unit (9) and said battery (10) to each other, preferably said electronic support (30) being a printed circuit of the PCB type (Printed Circuit Board).
6. Costume jewellery or jewellery item (1) according to any of the preceding claims, wherein said central body (5) comprises, at said peripheral edge (7), connecting means (50) of said central body (5) to said door (4).
7. Costume jewellery or jewellery item (1) according to claim 6, wherein said connecting means (50) are connecting means of the pivotable type, preferably said connecting means of the pivotable type being a hinge.
8. Costume jewellery or jewellery item (1) according to any of claims 6 to 7, wherein said door (4) comprises a substantially hemispherical dome (40), having a convex surface (41) and an opposite concave surface (42), and a support arm (45), laterally protruding with respect to said dome (40) and couplable to said central body (5) by said connecting means (50).
9. Costume jewellery or jewellery item (1) according to

claim 7 or 8, wherein said connecting means (50) of the pivotable type comprise a first support (50a) and a second support (50b), both vertically and laterally protruding to the outside of said peripheral edge (7), preferably said first support (50a) comprises a first recess (51a) and said second support (50b) comprises a second recess (51b), specular and longitudinally aligned with said first recess (51a).

10. Costume jewellery or jewellery item (1) according to claim 9, wherein said support arm (45) comprises a first vertically-extending side (46a), a second vertically-extending side (46b), a first pin (47a), protruding from said first side (46a), and a second pin (47b), protruding from said second side (46b), specular and aligned with said first pin (47a), said first pin (47a) being couplable by shape coupling to said first recess (51a) of said first support (50a) of said central body (5), and said second pin (47b) being couplable by shape coupling to said second recess (51b) of said second support (50b) of said central body (5) so as to facilitate the opening of said door (4) by a pivotable movement.
11. Costume jewellery or jewellery item (1) according to any of claims 5 to 10, comprising a switch capable of closing a circuit between said electronic support and said battery.
12. Costume jewellery or jewellery item (1) according to claim 11, wherein said electronic support (30) comprises an extension (31) of flexible material, capable of conducting electricity, and partially protruding from said internal cavity (8) of said central body (5), and wherein a tab (60) is connected to said battery (10), made of a material capable of conducting electricity and partially protruding from said internal cavity (8) of said central body (5), said extension (31) and said tab (60) being positioned so that, when said door (4) is in the open position, said support arm (45) abuts from above on said extension (31), said extension (31) undergoing an elastic deformation and contacting said underlying tab (60).
13. Costume jewellery or jewellery item (1) according to any of the preceding claims, wherein said battery (10) is a rechargeable battery, preferably of the type being rechargeable by contact or rechargeable through electromagnetic induction.
14. Costume jewellery or jewellery item (1) according to claim 13, wherein said diaphragm (11) comprises a first hole (70a) and a second hole (70b), said first hole (70a) and said second hole (70b) individually defining a gap which passes through said diaphragm (11) from said first surface (12) to said second surface (13), wherein said dome (40) of said door (4) comprises a first dome hole (43a) and a second

dome hole (43b), said first dome hole (43a) and said second dome hole (43b) individually defining a gap which passes through said dome (40) from said convex surface (41) to said concave surface (42), and wherein, when said door (4) is in the closing position, said first hole (70a) of said diaphragm (11) is vertically aligned with said first dome hole (43a) and said second hole (70b) of said diaphragm (11) is vertically aligned with said second dome hole (43b).

15. Kit comprising a costume jewellery or jewellery item (1) suitable for the use as a cigarette lighter according to claim 13 or 14, and a recharging station capable of recharging said battery (10), preferably wherein said recharging station comprises an electric plug bearing a pair of parallel metal contacts, capable of allowing an electric contact to be transmitted between said recharging station and said battery (10) by passing through said first dome hole (43a) and said second dome hole (43b), or wherein said recharging station is a station for recharging batteries through electromagnetic induction.

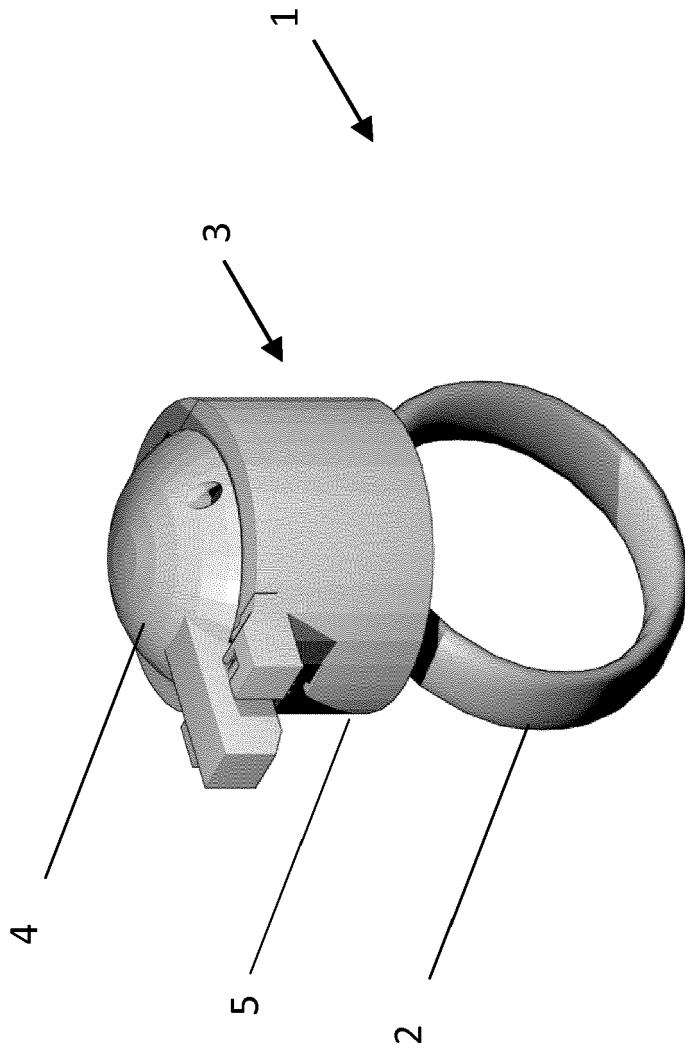


Fig. 1

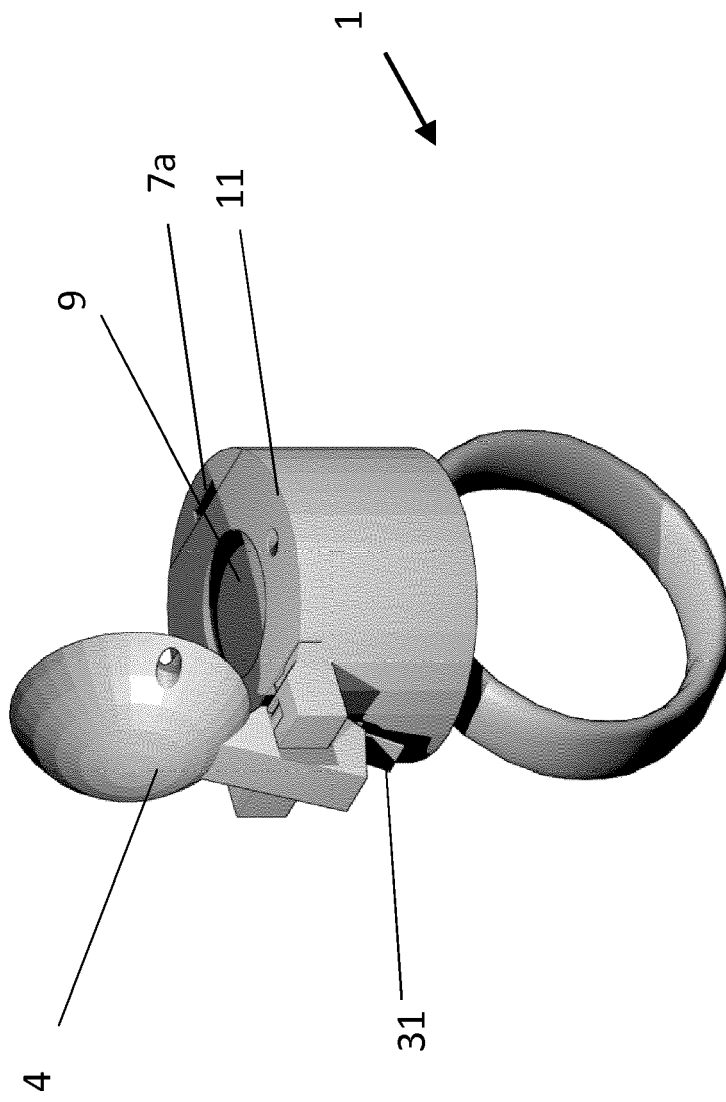


Fig. 2

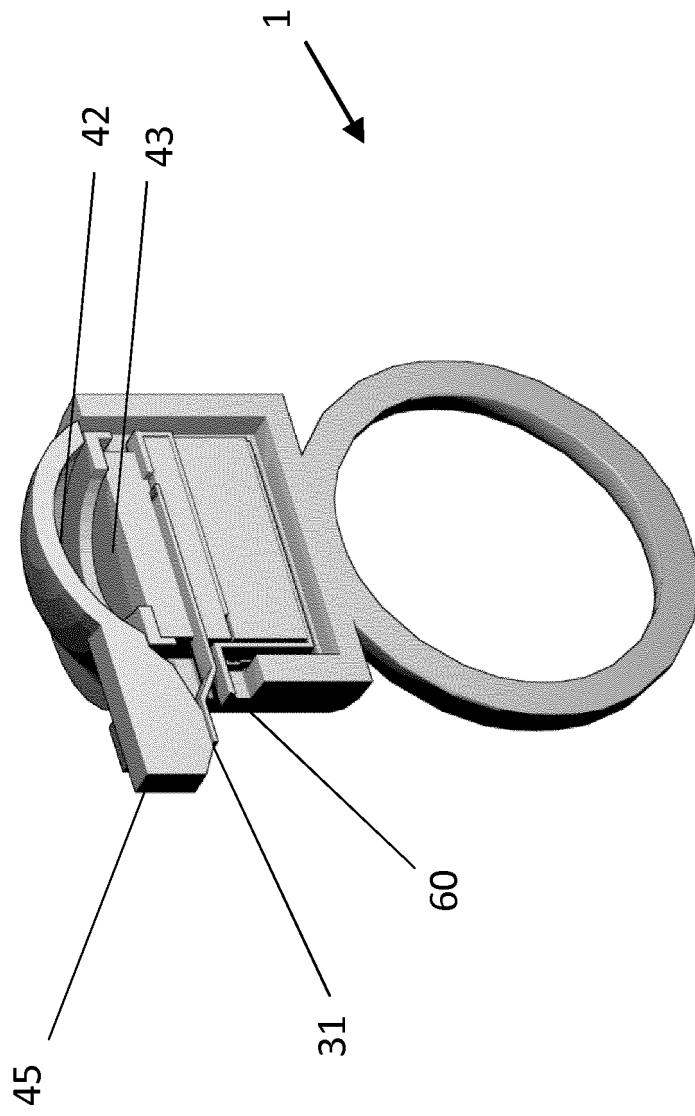


Fig. 3

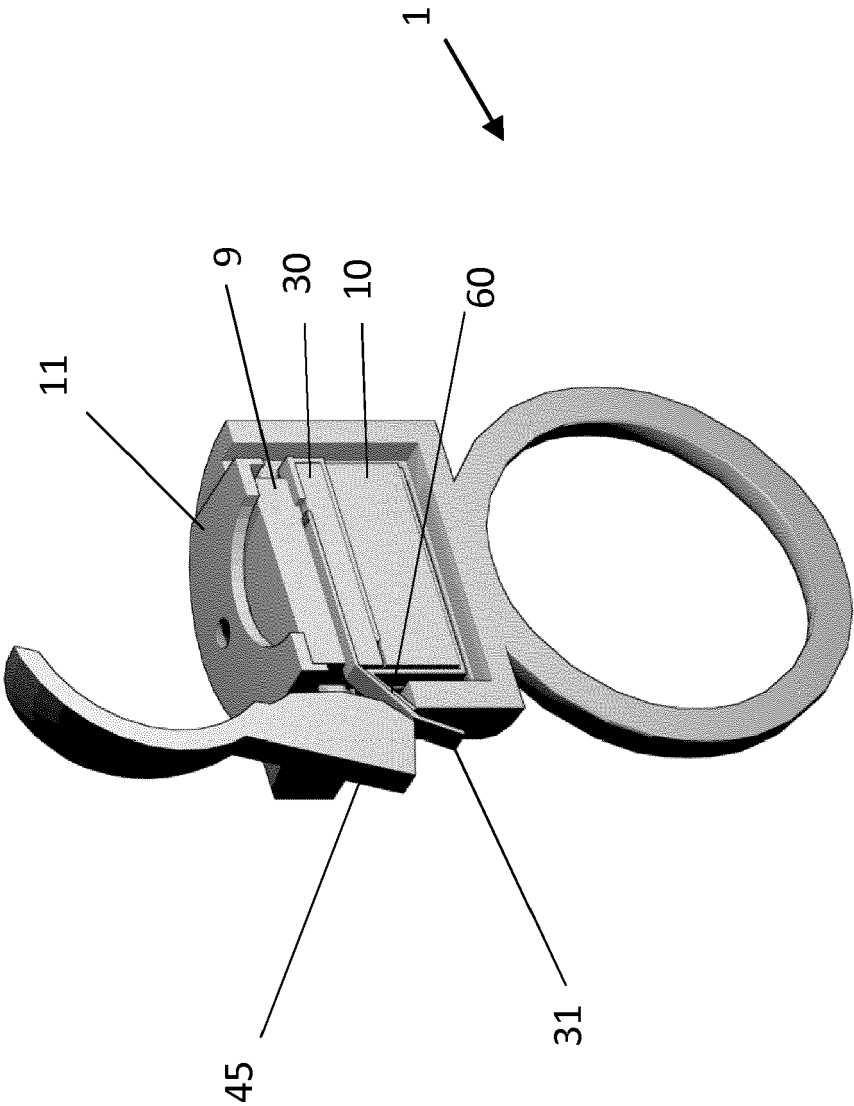


Fig. 4

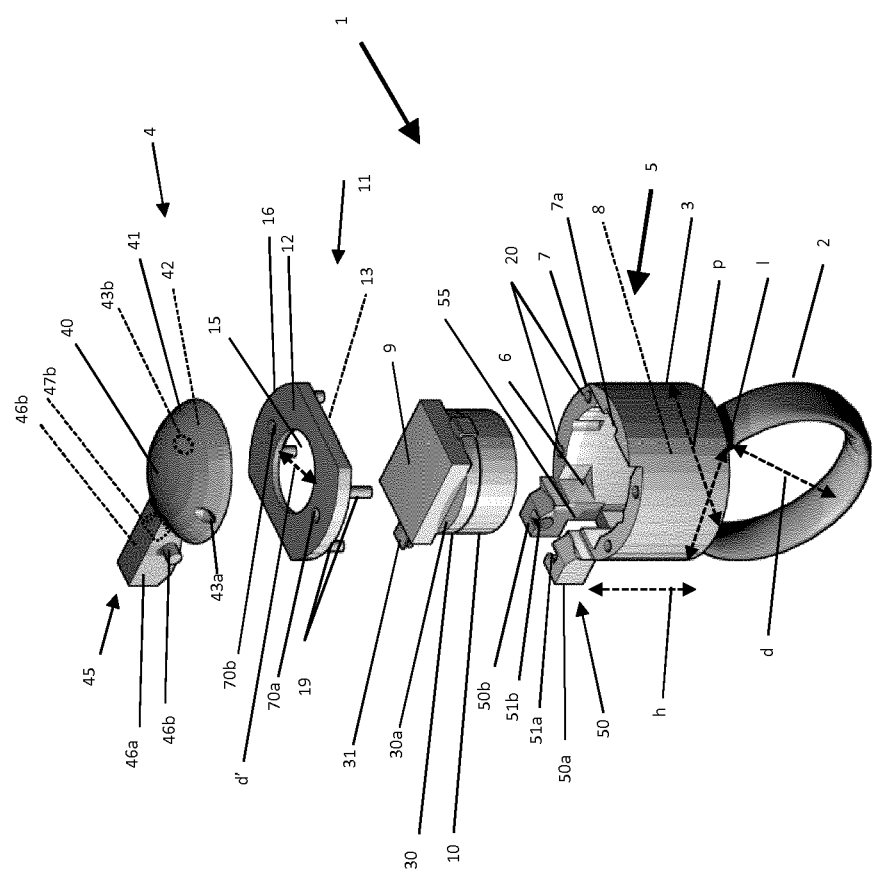


Fig. 5



EUROPEAN SEARCH REPORT

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	* abstract; claim 1; figure 1 * -----		
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Place of search The Hague		Date of completion of the search 18 February 2019	Examiner Monné, Eric
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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18-02-2019

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