

**PORTABLE DEVICE FOR AN INTERCHANGEABLE CAPSULE
CONTAINING A SOLID COSMETIC PRODUCT, CAPSULE AND USES
THEREOF**

5 TECHNICAL FIELD

[0001] The invention falls within the field of cosmetics and perfumery, as well as body care and beauty products.

10 [0002] The invention relates to a portable device having an opening and closing system and intended to receive an interchangeable capsule containing a solid product, in particular a solid cosmetic product or a solid perfume, as well as said capsule containing a solid product, in particular a solid cosmetic product or a solid perfume, said capsule being able to be
15 positioned and held in place in a device having said opening and closing system according to the invention.

[0003] Within the meaning of the present invention, the terms “solid product,” “solid composition” or “solid substance” are equivalent, and encompass any
20 type of cosmetic product in solid form, in particular balm or compacted powder, as well as any type of perfumery product in solid form, most particularly solid perfume, but also a solid deodorant, in any form, in particular as compact balm, as well as any type of body care product, for external use, for the skin, such as solid soap, or for hair, such as a solid shampoo, or even for beard hair, such
25 as a balm, as well as any type of beauty product for aesthetic use, such as compact makeup powder or a solid makeup remover.

[0004] Such a solid, cosmetic or perfumery product, or body care product, may, preferentially but not restrictively, be applied externally, essentially in contact
30 with the skin and the hair.

PRIOR ART

[0005] The existence of solid products in cosmetics and perfumery, such as perfume in solid form, has been known for many years. However, the lack of practicality of the use of solid perfume has led to the appearance and generalization of fragrance in liquid form, in particular vaporized or sprayed, or in gaseous form dispersed by aerosol, such as deodorants, while today solid perfume is no longer part of consumers' common habits.

[0006] With a recent renewal, however, numerous brands are offering solid perfume, but generally in a low-value quality and a basic container, in the form of a box provided with a removable cover, sometimes crafted and developed, especially in the luxury field.

[0007] Devices have been put in place to attempt to mitigate the lack of practicality of the use of solid perfume. However, certain technical problems remain, limiting the use and generalization of solid perfume.

[0008] Among the devices used to combat the lack of practicality of the use of solid perfume, most have a valve or slide system, the opening and closing of which are actuated by the user's hands.

[0009] Patent document WO2010/85500 discloses a portable device, of generally tubular or parallelepiped shape with rounded edges, aiming to contain within two distinct receptacles, inter alia, two cosmetic substances, in particular in solid form: one for use and another for filling after full use. The device is therefore provided to be reusable, making it possible to refill one of the two receptacles by means of the other refill receptacle, the two receptacles being independent of one another. Additionally, the two receptacles about one another by being removably attached against one another.

[0010] Patent document FR3083449 discloses a portable device, in the form of a housing, aimed at containing several odorous solid compositions, the purpose of which is to perfume a human keratin material, such as the skin. Such a device comprises a body, provided with recesses shaped to receive a removable element incorporating one or more compositions. Additionally, this device comprises a system for opening and closing the valve, in particular in the form of a cover articulated via hinges.

[0011] Patent document US10925374 also discloses a portable device intended to receive an interchangeable capsule containing a cosmetic product, said device comprising a receptacle with a recess shaped and dimensioned complementarily to receive said removable capsule, said device being equipped with a system for opening and closing said valve recess.

[0012] Also known is patent document US7014045, which describes a cosmetic housing comprising a base element, a pair of covers having a first cover and a second cover, and the first cover and the second cover being pivotably linked to the base element.

[0013] As examples of known devices comprising a solid perfume, mention may also be made of the “EAU CAPITALE®” collection from the company “DIPTYQUE®,” which implements a container with a recess for receiving a solid perfuming substance. The device comprises a system for opening and closing by valve, in the same way as a compact. The device is closed by a magnet system. A removable fastening, in particular magnetized, is used to hold the refill in place at the bottom of the recess of this case.

[0014] Other devices implemented by “ALWIS AND XAVIER ENTERPRISE®” under the name of “STAG SOLID COLOGNE®,” and by “JUNIPER RIDGE®” under the name of “SOLID PERFUME,” are disposable, in the form of a metal tray with a removable cover, aiming to directly contain a solid perfuming

substance. Once the product has been consumed, the consumer removes the empty tray and must buy a new one.

5 [0015] The device developed by “Le LABO®” under the name of “SOLID PERFUME” is in the form of a cylindrical case, divided into a first part with a recess aiming to contain a capsule of solid perfuming substance and a second part forming a cover mounted pivotably and the closure system of which is provided by the magnetized stop. The capsule is held in the device by means of a magnet placed at the bottom of the recess.

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[0016] Similarly, the “HAVANA TOBACCO FRAGRANCE SOLID COLOGNE®” device developed by “SUAVECITO®” is known, which takes the form of a box intended to contain a solid perfuming substance. The opening and closing system corresponds to a pivot system, ensuring the rotation of the cover relative to the rest of the box. The capsule is also held in the device by means of a magnet placed at the bottom of the recess accommodating the solid perfume capsule.

20 [0017] In short, the existing devices, if they are compact for portability thereof, ensure opening by pivoting or rotation, with a resulting offset of the cover relative to the rest of the housing, requiring opening with two hands. Additionally, the holding of the capsules within the recess of the known devices is often precarious, with a single magnet, capable of causing the capsule to move during transport of the device, in particular due to impacts in the bag or even in the pocket for the most compact devices.

TECHNICAL PROBLEM

30 [0018] Considering the foregoing, a problem that the present invention proposes to solve consists in developing a portable device, capable of improving the use of solid compositions in cosmetics but especially in

perfumery, with a way of perfuming oneself that combines the technical, creativity, style and quality.

5 [0019] The objective is to create a small, extremely lightweight object, offering strength and longevity with a minimal weight, while being functional, namely which satisfies all of the usage functions for the product that it contains, whether cosmetic or perfumery. In addition, the invention envisages offering a collection of fragrances that are easy to use in everyday life, but also on the go, using a portable and compact device, provided with quick and reliable
10 positioning of the solid perfume container.

[0020] To do this, the invention targets a portable device having a system for simultaneous opening and closing of both sides, in a single movement. Such a portable device is intended to receive an interchangeable capsule containing
15 a solid product, such as a solid cosmetic and a solid perfume.

[0021] Additionally, the portable device according to the invention incorporates all of the functions and features of a device with an improved opening and closing system and accommodating a capsule provided to be interchangeable,
20 while protecting the composition, such as the perfume, and its natural components sensitive to air and to outside elements, such as dust.

[0022] The device according to the invention makes it possible to solve the question of daily use of a solid, namely non-liquid composition, through a
25 compact device, while contributing to renewing a habit of perfuming oneself, thus creating a new attitude and new way of life.

[0023] The portable device according to the invention offers everyone easy use of “their” perfumes in any everyday living situation, with a compact device that
30 can be carried by the user. The invention makes it possible to move around with one or more cosmetic and/or perfumery compositions, without any associated risk or constraints, particularly the safety constraints related to air

transport, in particular relative to containers of liquid or aerosol fragrances, which further have a high likelihood of breaking, cracking or being damaged in the event of a fall or impact occurring during transit.

5 TECHNICAL SOLUTION

[0024] According to the invention, the solution to the problems raised relates first to a portable device for receiving an interchangeable capsule containing a solid cosmetic or perfumery product, said device comprising a receptacle
10 having a recess that is complementarily shaped and sized for receiving said capsule, said device being equipped with a system for opening and closing said recess, said recess comprising holding means which are provided to be removable from said capsule, the holding means comprising snap-fastening means shaped to engage with complementary snap-fastening means
15 equipping said capsule.

[0025] Such a device is characterized in that:

- the opening and closing system (7) comprises a right lid (70) and a left lid (71), which are slidably mounted relative to said receptacle (3), from an open
20 position to a closed position covering said recess (4), and vice versa,
- said opening and closing system (7) comprising
 - a first rack (700) secured to the right lid (70),
 - a second rack (710) secured to the left lid (71),
 - 25 - a toothed central wheel (72) rotatably mounted within said receptacle (3) and meshing with said first rack (700) and said second rack (710), conferring a simultaneous linear drive in opening said right lid (71) and said left lid (70) to separate them, and closing said lids to bring them closer together.

30 [0026] According to one non-limiting embodiment, the means for holding said capsule in the recess of said device comprise at least three snap-fastening means in the form of a ball catch, preferentially four snap-fastening means,

more preferentially eight snap-fastening means, said capsule being reciprocally provided with complementary snap-fastening means engaging with the ball of said catch chosen from three orifices, preferentially four orifices or more preferentially eight orifices, or else at least one groove, said groove
5 being provided on the periphery of said capsule.

[0027] According to a preferential embodiment, the means for holding said capsule in the recess of said device can comprise snap-fastening means shaped to engage with each of said complementary snap-fastening means of
10 the capsule in the form of a ball catch, chosen from three orifices, preferentially four orifices or more preferentially eight orifices, or at least one groove, said capsule being reciprocally provided with three complementary snap-fastening means in the form of a ball catch, preferentially four snap-fastening means, more preferentially eight snap-fastening means.

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[0028] According to one embodiment, said snap-fastening means may comprise at least one groove, shaped to engage with each of said complementary snap-fastening means of the capsule in the form of a ball catch.

20 [0029] According to one embodiment, the snap-fastening means may comprise at least one groove machined upwardly or downwardly on an inner contour of said recess, said at least one groove serving as an abutment for insertion of said capsule.

25 [0030] According to one embodiment, the recess may comprise two grooves machined upwardly and downwardly on the inner contour of said recess, said two grooves serving as stops in insertion of said capsule along two positions respectively from the top and from the bottom.

30 [0031] According to one embodiment, the opening and closing system may comprise:

- right levers and left levers, in the form of two right and left pairs of sliding connecting rods, each of the right connecting rods and the left connecting rods being mounted, at one end, sliding around and along a same pin respectively secured to said right lid and said left lid and, at the opposite end, rotating
5 around a connecting pin secured to said receptacle;
- elastic blades, mounted secured to said receptacle and forming springs exerting a return force on the respective ends of the levers, away from the right lid and from the left lid toward the open position.

10 [0032] According to one embodiment, the opening and closing system may comprise an inflection point for each of said pairs of right connecting rods and left connecting rods of the right levers and left levers, beyond which said return force exerted by said elastic blades ensures the convergence of said right and left lids to said closed position.

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[0033] According to one embodiment, one or the other of the components of said portable device may be based on a material chosen from titanium or a derivative thereof, preferentially grade 5 titanium, gold or red gold, steel, aluminum, carbon, plastic, poly(methyl methacrylate).

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[0034] The invention also relates to a second subject matter of an interchangeable capsule containing a solid product, said capsule being able to be housed and held fixed via the holding means of the portable device according to the invention, characterized in that said capsule comprises a
25 hollow shell provided externally with complementary snap-fastening means, shaped to engage with said snap-fastening means of said portable device.

[0035] According to one embodiment, each of said complementary snap-fastening means may be a ball catch engaging with the snap-fastening means
30 in the form of at least one groove, said groove being machined upwardly or downwardly on an inner contour of said recess.

[0036] According to one embodiment, said hollow shell inwardly contains said solid product selected from a solid perfume, a makeup powder, a solid makeup remover, a solid soap, a solid shampoo or a solid deodorant.

- 5 [0037] Another third subject matter of the invention is also the use of the device according to the invention, provided with a capsule according to the invention, to clean oneself, for skin care, for makeup application or for perfume application, depending on the corresponding product contained inside the hollow shell of said capsule.

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BRIEF DESCRIPTION OF THE FIGURES

[0038] The invention and its advantages will be better understood on reading the following description and non-limiting embodiments, with reference to the
15 appended figures, wherein:

Figure 1 schematically depicts a perspective view of an embodiment of the portable device according to the invention, showing in particular the device in the closed position;

- 20 Figure 2 schematically depicts a view similar to Figure 1, showing in particular said portable device in the open position, within which an interchangeable capsule is held;

Figure 3 schematically depicts a cross sectional view along a longitudinal median plane of the portable device in the open position with a capsule held in its recess;

- 25 Figure 4 schematically depicts a view similar to Figure 3 of said portable device in the closed position, according to one embodiment, in particular showing holding means comprising eight snap-fastening means in ball catch form within its recess;

- Figure 5 schematically depicts a perspective view of an interchangeable capsule, according to one embodiment, in particular showing complementary
30 snap-fastening means in the form of a ball catch;

Figure 6 schematically depicts a view along a transverse median cross section of Figure 5, in particular showing said complementary snap-fastening means in ball catch form;

Figure 7 schematically depicts a view along a transverse median cross section of another embodiment of an interchangeable capsule, in particular showing said complementary snap-fastening means in the form of a groove.

DETAILED DESCRIPTION OF THE INVENTION

[0039] The invention relates to a portable device 1 intended to receive an interchangeable capsule 2, hereinafter "capsule."

[0040] In particular, said capsule 2 contains a solid product, of the cosmetic or perfumery type. As mentioned above, said solid product may be any type of cosmetic product in solid form, in particular balm or compacted powder, as well as any type of perfumery product in solid form, most particularly solid perfume, but also a solid deodorant, in any form, in particular as compact balm, as well as any type of body care product, for external use, for the skin, such as solid soap, or for hair, such as a solid shampoo, or even for beard hair, such as a balm, as well as any type of beauty product for aesthetic use, such as compact makeup powder or a solid makeup remover.

[0041] Such a solid, cosmetic or perfumery product, or body care product, may, preferentially but not restrictively, be applied externally, essentially in contact with the skin and the hair.

[0042] More specifically, said capsule 2 comprises a hollow shell 20, so as to contain said solid product.

[0043] According to one embodiment, the inner surface of said shell 20 may comprise ridges 21, shaped specifically, so as to improve the resistance of the

solid product inside said shell 20. Figures 3 and 5 show examples of ridges, provided within the bottom 22 of the shell 2.

[0044] According to one embodiment, the bottom 22 can be straight, namely
5 parallel or substantially parallel to the lower wall 25 of the shell 2.

[0045] According to another embodiment, as can be seen in Figures 6 and 7, the bottom 22 has a downward slope toward the center of the capsule 2.

10 [0046] Additionally, the bottom 22 may be concave.

[0047] Furthermore, the shell comprises an inner wall 23, extending in a circular manner around said bottom 22. According to one embodiment, said inner wall 23 can be inclined relative to the plane passing through said bottom
15 22. In other words, the inner wall is not parallel to the outer wall 24, but has an inclination. Additionally, this inclination extends diverging from said bottom 22. In short, the inner wall 23 approaches and contracts at the opening of the capsule 2. Thus, this inclination confers a larger internal diameter at the bottom 23 than at said opening, improving the resistance of the solid product
20 contained in said capsule 2.

[0048] Additionally, said capsule 2 is provided to be interchangeable, namely it is mounted removably relative to said portable device 1. This interchangeable nature allows the capsule 2 to be positioned and removed from said portable
25 device 1, in particular when the product that it contains is depleted, but also to change products by inverting capsules 2 containing different compositions.

[0049] To do this, said portable device 1 comprises a receptacle 3 with a recess 4.

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[0050] Said receptacle 3 may have any shape, in particular a generally rectangular parallelepiped shape. This receptacle 3 serves as a base or a central body for the portable device 1.

5 [0051] In this respect, the portable nature of the device 1 corresponds to dimensions and a mass that allow it to be grasped by a user, as well as handled, but also allow it to be stored, in particular in a bag or a piece of luggage, for example of the handbag type, or else in a pocket or pouch. The portable device 1 therefore aims to be compact.

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[0052] More specifically, the recess 4 is shaped and dimensioned complementarily to receive said capsule 2. In other words, the internal dimensions of the recess 4 correspond to the external dimensions of the capsule 2, with the clearance allowing the insertion of said capsule 2 within
15 said recess 4. Additionally, the insertion of the capsule 2 can be carried out by gliding or sliding within the recess 4.

[0053] Furthermore, the recess 4 and the capsule 2 may have any shape. According to a preferential embodiment, the recess 4 has a circular cross
20 section, while the capsule 2 has a generally cylindrical shape.

[0054] Said recess 4 can be provided blind, but preferentially through, allowing the capsule 2 to be inserted in two directions from the top or from the bottom by turning over the portable device 1.

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[0055] More specifically, according to the invention, said recess 4 comprises means for holding said capsule 2, which holding means are intended to be removable. Thus, the holding means make it possible to insert the capsule 2 and to keep it secured to the receptacle 3, in particular during the transport of
30 the portable device 1 and during handling thereof, while ensuring the possibility of extracting the capsule 2, in particular to change or replace it.

[0056] Advantageously, the invention provides that the holding means comprise snap-fastening means 5 shaped to engage with complementary snap-fastening means 26 equipping said capsule 2. In short, the capsule 2 is held in the recess 4 by a snap-fastening mechanism between said capsule 2
5 and the recess 4. This snap-fastening therefore ensures the locking of the capsule 2 in a removable manner.

[0057] Said snap-fastening means 5 may be of any type. For example, the snap-fastening means 5 can work by interlocking, in particular by male and
10 female parts, by bayonets or the like.

[0058] According to one embodiment, the means for holding said capsule 2 in the recess 4 of said device 1 comprise at least three snap-fastening means 5 in the form of a ball catch, preferentially four snap-fastening means 5, more
15 preferentially eight snap-fastening means 5. In addition, said capsule 2 is reciprocally provided with complementary snap-fastening means 26 engaging with the ball of said catch selected from three orifices, preferentially four orifices or more preferentially eight orifices, or at least one groove 6, said groove 6 being provided on the periphery of said capsule 2.

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[0059] Such a configuration is in particular visible in Figure 7, wherein a groove 6 arranged on the periphery of the capsule 2, namely hollow along its peripheral wall, is visible in cross section. Additionally, the groove 6 is provided in the lower part of this lateral edge, opposite the ball catches of the device 1
25 which are then located in the lower part of the recess 4.

[0060] According to another preferential embodiment, the means for holding said capsule 2 in the recess 4 of said device 1 comprise snap-fastening means 5 shaped to engage with each of said complementary snap-fastening means
30 26 of the capsule 2 in the form of a ball catch, selected from three orifices, preferentially four orifices or more preferentially eight orifices, or at least at least one groove 6. Furthermore, said capsule 2 is reciprocally provided with

three complementary snap-fastening means 26 in the form of a ball catch, preferentially four snap-fastening means 26, more preferentially eight snap-fastening means 26.

5 [0061] Additionally, the ball catches are integrated around the capsule 2, located on its periphery. Such a configuration is in particular visible in Figures 5 and 6, showing the complementary snap-fastening means 26 in the form of ball catches.

10 [0062] According to one embodiment, the recess 4 comprises at least one groove 6 machined upperwardly or downwardly on an inner contour of said recess 4. This groove acts as a support stop for the insertion of said capsule 2. This single groove then ensures a single direction of insertion of the capsule 2 into the recess 4, for example only from one or other of the faces of the
15 portable device 1, preferentially from a face located above.

[0063] According to a preferential embodiment, the recess 4 comprises two grooves machined upwardly and downwardly on the contour of said recess 4. Said two grooves serve as support stops for inserting said capsule 2 in two
20 positions respectively from the top and from the bottom. In other words, it is possible to introduce the capsule 2 from any of the faces of the portable device 1.

[0064] In this case, it will be noted that the recess 4 is provided to be a through
25 recess.

[0065] According to one embodiment, the snap-fastening means 5 comprise at least one groove 6, preferentially two grooves, machined upwardly or downwardly on an inner contour of said recess 4, each of said at least one, preferentially two grooves 6 serving as a stop in a direction of insertion of said capsule 2.

30 [0066] Preferentially, the snap-fastening means 5 comprise a groove 6, located in the lower part of the recess 4, allowing the capsule 2 whose

corresponding catches are located opposite and in the lower part on the periphery of said capsule 2.

[0067] According to another embodiment, the recess 4 comprises two grooves
5 6 machined upwardly and downwardly on the inner contour of said recess 4, said two grooves 6 serving as stops in insertion of said capsule 2 along two positions respectively from the top and from the bottom.

[0068] In either case, a ball catch is usually known, also referred to as a “ball
10 pusher.” It comprises a hollow cylindrical flange, forming a blind hole, within which a compression spring comes into abutment with the bottom of the flange. On the open side, a ball is positioned, bearing under the effect of compression of the spring against the peripheral edge face, the opening dimension of which is less than the diameter of said ball, preventing the latter from being expelled
15 from said flange. In addition, the inner diameter of the flange is equal or substantially equal to the diameter of said ball, allowing it to move in gliding, rolling or sliding toward the interior of the flange, during bearing carried out on said ball, which is then pushed inwardly, until it comes flush with said edge face of the flange. The spring then pushes the ball back outwardly, once the
20 bearing is stopped. The ball then protrudes again.

[0069] Thus, by protruding, the ball is inserted into the corresponding orifice or groove 6, preferentially the corresponding groove 6, ensuring the locking of the capsule 2 in the recess 4.
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[0070] According to one embodiment of the invention, there can be at least three snap-fastening means 5. These three snap-fastening points, distributed around the recess 4, ensure at least the holding of the capsule 2 in the recess 4, without it being able to rotate, tilt or oscillate inside said recess 4. Additionally, the at least
30 three snap-fastening means 5 are distributed in a triangular manner, at least on either side of an axis of symmetry of said recess 4.

[0071] Additionally, logically, the capsule 2 may comprise as many complementary snap-fastening means 26 as the recess 4 comprises snap-fastening means 5, when said complementary snap-fastening means 26 are independent of one another, in particular when they are orifices or ball catches.

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[0072] Conversely, in the case of complementary snap-fastening means 26 in the form of a groove 6, then a single groove 6 can be used to engage the three snap-fastening means 5 of the device 1. This configuration makes it possible in particular to rotate the capsule 2 at an arbitrary angle, to reposition it within the recess 4 as the user likes.

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[0073] According to another embodiment, in order to improve the holding of the capsule 2, the means 5 for holding said capsule 2 in the recess 4 of said portable device 1 comprise at least four snap-fastening means 5. Said capsule 2 is then reciprocally provided with four complementary snap-fastening means 26, again if the latter are independent.

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[0074] Conversely, in the case of complementary snap-fastening means 26 in the form of a groove 6, then a single groove 6 can be used to engage the four snap-fastening means 5 of the device 1.

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[0075] According to a preferential embodiment, as can be seen in Figure 4, the means 5 for holding said capsule 2 in the recess 4 of said portable device 1 comprise eight snap-fastening means 5, while said capsule 2 is reciprocally provided with eight complementary snap-fastening means 26, again if the latter are independent. Such a configuration with eight snap-fastening means 5 is in particular visible in Figure 4. This configuration ensures optimal holding of the capsule 2, but also strength when the user presses on said capsule 2 during the use of the solid composition that it contains.

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[0076] Conversely, in the case of complementary snap-fastening means 26 in the form of a groove 6, then a single groove 6 can be used to engage the eight snap-fastening means 5 of the device 1.

5 [0077] According to another preferential embodiment, conversely, the means for holding said capsule 2 in the recess 4 of said device 1 comprise snap-fastening means 5 shaped to engage with each of said complementary snap-fastening means 26 of the capsule 2 in the form of a ball catch, selected from
10 three orifices, conversely, preferentially four orifices or more preferentially eight orifices, or at least one groove 6, preferentially at least one groove 6 machined upwardly or downwardly on an inner contour of said recess 4, more preferentially two grooves 6. In this configuration, said capsule 2 is reciprocally provided with three complementary snap-fastening means 26 in the form of a ball catch, preferentially four snap-fastening means 26, more preferentially
15 eight snap-fastening means 26.

[0078] Moreover, the removable snap-fastening of the capsule 2 allows the user to reposition it angularly, making it rotate according to the angle between the means 5, 26, in particular based on an irregular use on one side of the product
20 contained in said capsule 2, this type of irregularity usually being caused due to use by a right-handed or left-handed user. The user then simply needs to remove the capsule 2 from the recess 4, to turn it so as to reposition it.

[0079] According to one embodiment, the snap-fastening means 5 are
25 regularly distributed around said recess 5. The snap-fastening means 5 can therefore be spaced apart at regular intervals, or else according to one or several symmetries, along one or more axes of symmetry, or according to a center of symmetry, on the inner wall of said recess 4.

30 [0080] In particular, in the case of an even number of snap-fastening means 5, two snap-fastening means 5 are preferentially diametrically opposite.

[0081] According to one embodiment, the snap-fastening means 5 are located in a central longitudinal median plane of said portable device 1, upper and/or lower relative to said recess 4. In a respective manner, the complementary snap-fastening means 26 are located in a central longitudinal median plane of said capsule 2, upper and/or lower relative to said capsule 2. Figures 6 and 7 show complementary snap-fastening means 26 located in the lower part of said capsule 2.

[0082] More specifically, according to the invention, said portable device 1 is equipped with a system 7 for opening and closing said recess 4, hereinafter “system.”

[0083] More specifically, the system 7 comprises a right lid 70 and a left lid 71. The lids 70, 71 are slidably mounted relative to said receptacle 3 from an open position to a closed position covering said recess 4, and vice versa.

[0084] In particular, in the open position of the lids 70, 71, the entire recess 4 is accessible. In other words, the spacing between the lids 70, 71 in the open position has at least equal dimensions, preferentially greater than the recess 4, and in fact than the capsule 2.

[0085] In order to ensure the simultaneous opening and closing of the lids 70, 71, said system 7 comprises a first rack 700 secured to the right lid 70 and a second rack 710 secured to the left lid 71.

[0086] In addition, the system 7 comprises a central toothed wheel 72, rotatably mounted within said receptacle 3. In particular, the wheel 72 is rotatably mounted around said recess 4.

[0087] In addition, the wheel 72 is mounted meshing with said first rack 700 and said second rack 710, conferring a simultaneous linear drive in opening

said right lid 70 and said left lid 71 to separate them, and closing said lids to bring them closer together.

[0088] Thus, during the opening and/or closing, the actuation by the user on
5 the right lid 70 (or the left lid 71), secured to its right rack 700 (or respectively to its left rack 710), makes it possible to create a rotation on the toothed wheel 72 which will drive the other left rack 710 (or respectively the other right rack 700), which itself is secured to the other left lid 71 (reciprocally, to the other right lid 70). Thus, a synchronized opening of the two lids 70, 71, offering the
10 possibility of opening and closing the device 1 with a single hand, is obtained.

[0089] According to one embodiment, the system 7 comprises right levers 701 and left levers 711, in the form of two right and left pairs of sliding connecting rods. In addition, each of the right connecting rods and the left connecting rods
15 is mounted, at one end, sliding around and along a same pin 702, 712 secured to said right lid 70 and said left lid 71. At the opposite end, each of the two connecting rods of the levers 701, 711 is mounted in rotation around a pin 703, 713 for connecting to said receptacle 3. In particular, the levers 701, 711 have an oblong notch at one end, ensuring the sliding around the respective sliding
20 pin 702, 712, while the opposite end is mounted in rotation on the corresponding pins 703, 713.

[0090] Thus, the mechanism obtained by the respective assemblies of the levers 70, 71 is similar to two-bar mechanisms, in particular transforming the
25 essentially rectilinear thrust of the elastic blades 704, 714 into a rotational movement combined with a sliding of the levers 70, 71.

[0091] Additionally, according to a preferential embodiment, as can be seen in Figures 3 and 4, the levers 701, 711 are generally L-shaped, with an
30 orthogonal or substantially orthogonal branch, extending from said opposite end mounted in rotation on the rotation pin 703, 713.

[0092] In addition, the system 7 comprises elastic blades 704, 714, mounted secured to said receptacle 3. These blades 704, 714 are respectively located on the right and on the left, on either side of the recess 4. In addition, said elastic blades 704, 714 form springs exerting a return force on the respective
5 ends of the levers 701, 711, apart from the right lid 70 and from the left lid 71 toward the open position.

[0093] Thus, as can be seen in Figure 4, in the closed position, the levers 701, 711 compress their respective blade 704, 714, which will push back and
10 facilitate opening, due to the elastic return to the open position, as can be seen in Figure 3. Additionally, the elastic blades 704, 714 are configured to ensure an elastic return according to a maximum travel of the lids 70, 71 to said open position.

[0094] Furthermore, the end of opening stroke may be obtained by any type of abutment. In particular, the travel stop can be obtained by means of oblong notches, abutting against the respective sliding pin 702, 712 of the levers 701, 711.
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[0095] Conversely, in order to ensure locking in the closed position, the specific configuration of the system 7, due to the mechanism of levers 701, 711 with connecting rods, makes it possible to induce a geometry ensuring that said return force of the blades 704, 714 pushes the branches of the corresponding levers 701, 711 toward the bottom of the lids 70, 71, as can be seen in Figure 4.
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[0096] In particular, the movement of the levers 701, 711 has an inflection or equilibrium point, beyond which the return force exerts a pivoting of the connecting rod mechanism to the open position or the closed position, namely to push back or return the connecting rods relative to one another for each of
30 said levers 701, 711.

[0097] Thus, according to one embodiment, the system 7 comprises an inflection point for each of said pairs of right connecting rods and left connecting rods of the right levers 701 and left levers 711, beyond which said return force exerted by said elastic blades 704, 714 ensures the convergence of said right
5 70 and left 71 lids to said closed position. Additionally, this force beyond said inflection point ensures the locking of the lids 70, 71 in the closed position.

[0098] As a result, in order to unlock the lids 70, 71, the user simply exerts a thrust to pass the inflection point, the return force then ensuring only the sliding
10 of said lids 70, 71 until total opening of the portable device 1. The invention thus makes it possible to obtain a semi-automatic movement that applies after passing the given inflection point of the mechanisms to open and close the portable device 1.

15 [0099] The invention also relates to the portable device 1 comprising such an interchangeable capsule 2, as mentioned above.

[0100] The invention provides that the materials of the various aforementioned components may be of any type, in particular metal, composite, plastic, or a
20 ceramic matrix composite material.

[0101] According to various embodiments, one or the other of the components of said portable device 1 are based on a material selected from titanium or a derivative thereof, preferentially titanium, gold or red gold, steel, aluminum,
25 carbon, plastic, poly(methyl methacrylate).

[0102] Preferentially, the selected material is said grade 5 titanium, namely an alloy with aluminum-vanadium, imparting a compromise between mechanical strength, toughness and ductility, also ensuring easy machining and
30 weldability. Additionally, this grade 5 titanium used for the mechanism, but also for the capsule 2, is recognized for its multiple physical and mechanical properties such as its solidity, its resistance to corrosion and erosion, its

biocompatibility, its low density, etc. Grade 5 titanium is also particularly compatible with the components of cosmetic and perfumery products, without chemical interaction or the like between these elements.

5 [0103] The invention also relates to said capsule 2, intended to be interchangeable.

[0104] As mentioned above, said capsule 2 is able to be housed and held fixed owing to the holding means 5 of the portable device 1.

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[0105] Said capsule 2 comprises the hollow shell 20.

[0106] Additionally, said shell 20 can be made in a choice of material similar to the aforementioned components of said portable device 1.

15

[0107] Furthermore, said shell 20 provided externally with complementary snap-fastening means 26, conformed to engage with said snap-fastening means 5 of said portable device 1.

20 [0108] With reference to the corresponding embodiment, each of said complementary snap-fastening means 26 is a groove 6 engaging with the snap-fastening means 5 in the form of a ball catch. Such an embodiment is in particular visible in Figure 7.

25 [0109] Alternatively, with reference to the corresponding embodiment, each of said complementary snap-fastening means 26 is a ball catch engaging with the snap-fastening means 5 in the form of groove 6. Such an embodiment is in particular visible in Figure 6, showing two ball catches integrated into the capsule 2 in a diametrically opposite manner.

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[0110] Moreover, as mentioned above, said capsule 2 contains the solid, preferably cosmetic or perfumery product.

[0111] According to various embodiments, said hollow shell of the capsule 2 inwardly contains said solid product selected from a solid perfume, a makeup powder, a solid makeup remover, a solid soap, a solid shampoo or a solid deodorant.

[0112] Thus, the invention also relates to the use of the portable device 1, as previously described, when it is provided with a capsule 2, as previously described. The intended use is, non-limitingly, to clean oneself, for skin care, for makeup application or for perfume application, depending on the corresponding product contained inside the hollow shell of said capsule.

[0113] In fact, through its portable device 1 and its interchangeable capsule 2, the invention allows a user to make an easy change, based on their needs throughout the day. It is possible to transport several cosmetics or fragrances, each in a different capsule 2, which will then be inverted to house it and hold it in the device 1, depending on the desired use. This change of capsule 2 is carried out easily, without stress by pressing on the opposite side until it is snapped out and leaves the recess 4, without risk of being mistaken regarding the direction of introduction, as well as the opening and closing of the lids 70, 71 of said portable device 1.

[0114] In a connected manner, the reliability of the materials envisaged makes it possible to obtain a compact device 1, improving its portability, in particular due to its low weight.

[0115] Furthermore, the strong material of the capsule makes it possible to envisage a return and recycling service.

[0116] Thus, the portable device 1 according to the invention offers a renovated way of perfuming, modernizing and revolutionizing the use of solid cosmetics and especially solid perfume, thus creating a renewed habit and attitude.

Claims

1. A portable device (1) for receiving an interchangeable capsule (2) containing a solid cosmetic or perfumery product, said device (1) comprising a
5 receptacle (3) having a recess (4) that is complementarily shaped and sized for receiving said capsule (2), said device (1) being equipped with a system (7) for opening and closing said recess (4), said recess (4) comprising holding means which are provided to be removable from said capsule (2), said holding means comprising snap-fastening means (5) shaped to engage with
10 complementary snap-fastening means (26) equipping said capsule (2), characterized in that

- the opening and closing system (7) comprises a right lid (70) and a left lid (71), which are slidably mounted relative to said receptacle (3), from an open position to a closed position covering said recess (4), and vice versa,
15 - said opening and closing system (7) comprising

- a first rack (700) secured to the right lid (70),
- a second rack (710) secured to the left lid (71),
- a toothed central wheel (72) rotatably mounted within said receptacle
20 (3) and meshing with said first rack (700) and said second rack (710), conferring a simultaneous linear drive in opening said right lid (71) and said left lid (70) to separate them, and closing said lids to bring them closer together.

2. The portable device (1) according to claim 1, characterized in that the
25 means for holding said capsule (2) in the recess (4) of said device (1) comprise at least three snap-fastening means (5) in the form of a ball catch, preferentially four snap-fastening means (5), more preferentially eight snap-fastening means (5), said capsule (2) being reciprocally provided with complementary snap-fastening means (26) engaging with the ball of said
30 catch chosen from three orifices, preferentially four orifices or more preferentially eight orifices, or else at least one groove (6), said groove (6) being provided on the periphery of said capsule (2).

3. The portable device (1) according to claim 1, characterized in that the means for holding said capsule (2) in the recess (4) of said device (1) comprise snap-fastening means (5) shaped to engage with each of said complementary
5 snap-fastening means (26) of the capsule (2) in the form of a ball catch, said snap-fastening means (5) being selected from three orifices, preferentially four orifices or more preferentially eight orifices, or at least one groove (6), said capsule (2) being reciprocally provided with three complementary snap-fastening means (26) in the form of a ball catch, preferentially four snap-
10 fastening means (26), more preferentially eight snap-fastening means (26).

4. The portable device (1) according to claim 3, characterized in that said snap-fastening means (5) comprise at least one groove (6), shaped to engage with each of said complementary snap-fastening means (26) of the capsule (2)
15 in the form of a ball catch.

5. The portable device (1) according to claim 4, characterized in that the snap-fastening means (5) comprise at least one groove (6) machined upwardly or downwardly on an inner contour of said recess (4), said at least one groove
20 (6) serving as an abutment for insertion of said capsule (2).

6. The portable device (1) according to claim 5, characterized in that the recess (4) comprises two grooves (6) machined upwardly and downwardly on the inner contour of said recess (4), said two grooves (6) serving as stops in
25 insertion of said capsule (2) along two positions respectively from the top and from the bottom.

7. The portable device (1) according to one of the preceding claims, characterized in that the opening and closing system (7) comprises
30 - right levers (701) and left levers (711), in the form of two right and left pairs of sliding connecting rods, each of the right connecting rods and the left connecting rods being mounted, at one end, sliding around and along a same

pin (702, 712) respectively secured to said right lid (70) and said left lid (71) and, at the opposite end, rotating around a connecting pin (703, 713) secured to said receptacle (3);

- elastic blades (704, 714), mounted secured to said receptacle (3) and forming springs exerting a return force on the respective ends of the levers (701, 711), away from the right lid (71) and from the left lid (70) toward the open position.

8. The portable device (1) according to claim 7, characterized in that the opening and closing system (7) comprises an inflection point for each of said pairs of right connecting rods and left connecting rods of the right levers (701) and left levers (711), beyond which said return force exerted by said elastic blades (704, 714) ensures the convergence of said right and left lids (70, 71) to said closed position.

9. The portable device (1) according to any one of the preceding claims, characterized in that one or the other of the components of said portable device (1) are based on a material selected from titanium or a derivative thereof, preferentially grade 5 titanium, gold or red gold, steel, aluminum, carbon, plastic, poly(methyl methacrylate).

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10. An interchangeable capsule (2) containing a solid product, said capsule (2) being able to be housed and held fixed via the holding means of the portable device (1) according to the any one of claims 3 to 6, characterized in that said capsule (2) comprises a hollow shell (20) provided externally with complementary snap-fastening means (26), shaped to engage with said snap-fastening means (5) of said portable device (1).

11. The interchangeable capsule (2) according to claim 10, characterized in that each of said complementary snap-fastening means (26) is a ball catch engaging with the snap-fastening means (5) in the form of at least one groove (6), said groove (6) being machined upwardly or downwardly on an inner contour of said recess (4).

30

12. The interchangeable capsule according to one of claims 10 or 11,
characterized in that said hollow shell (20) inwardly contains said solid product
selected from a solid perfume, a makeup powder, a solid makeup remover, a
5 solid soap, a solid shampoo or a solid deodorant.

13. A use of the device (1) according to one of claims 1 to 9, provided with a
capsule (2) according to one of claims 10 to 12, to clean oneself, for skin care,
for makeup application or for perfume application, depending on the
10 corresponding product contained inside the hollow shell (20) of said capsule (2).