



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
18.03.2020 Bulletin 2020/12

(51) Int Cl.:
A46B 9/06 (2006.01) **A46B 9/00** (2006.01)
A46B 13/00 (2006.01)

(21) Application number: **18194803.5**

(22) Date of filing: **17.09.2018**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

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(54) **SKIN CARE ATTACHMENT FOR A PERSONAL CARE APPLIANCE**

(57) The present disclosure relates to a skin care attachment for a personal care appliance and to a respective personal care appliance that is equipped with said skin care attachment. In particular, the present disclosure relates to a skin care attachment with an interface that can be connected to a personal care appliance, wherein

the attachment comprises a skin treatment head with a first sponge region comprising a porous flexible material and a rubber region comprising rubber material. The present disclosure further relates to a use of a skin care attachment in a body grooming procedure.

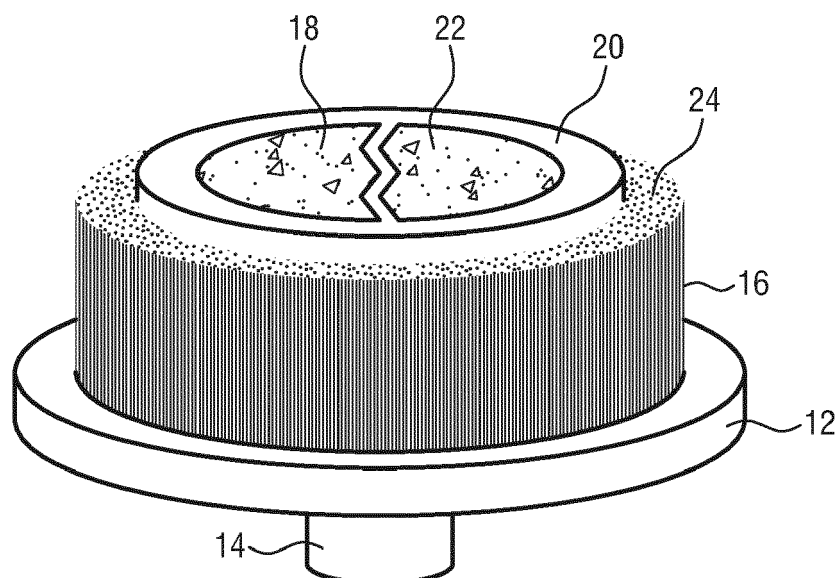


FIG.3

Description

FIELD OF THE INVENTION

[0001] The present disclosure relates to a skin care attachment for a personal care appliance and to a respective personal care appliance that is equipped with said skin care attachment.

[0002] In major embodiments, the present disclosure relates to a skin care attachment with an interface that can be connected to a personal care appliance, wherein the attachment comprises a skin treatment head with a first sponge region comprising a porous flexible material and a rubber region comprising rubber material.

[0003] The present disclosure further relates to a use of a skin care attachment in a body grooming procedure.

BACKGROUND OF THE INVENTION

[0004] WO 2017/102897 A1 discloses a body care device for treating a skin, the body care device comprising a housing and a skin treatment head associated with the housing, wherein the housing further comprises an actuator configured to rotate the skin treatment head about an axis, wherein the skin treatment head comprises a first region comprising a plurality of bristles and a second region comprising a porous flexible material.

[0005] For many individuals, particularly for female users, skin care is a central component of regular personal care procedures.

[0006] A general goal of skin care procedures is to have a healthy and well-groomed skin appearance. Hence, a clean and smooth skin appearance is desired. To this end, skin treatment devices are equipped with brushes and sponges. While bristles/brushes may be used to clean, cleanse and/or exfoliate a user skin in a rough way, sponges, in particular soft sponges, may be used to do so in a more thorough and softer way. Further, sponges may be used to apply skin care agents such as liquid soap or creams, and make-up to the user's skin.

[0007] It has been observed that bristles in such devices are usually quite hard and often, in particular when buckled or broken, comprise sharp edges. Accordingly, they may irritate or even damage sensitive skin involving visible scratches, local inflammations, lumps and pimples, but also a hot and itchy sensation of the skin.

[0008] Further, skin care appliances comprising treatment heads with both bristle (or even brush) components and sponge components are not durable for long. After a certain time of use, bristles may buckle and cause ruptures in sponge regions such that a reliable skin care can no longer be guaranteed.

[0009] Besides, personal care materials such as make-up, which is intended to be applied to and/or by a sponge only, usually passes over to the appliance's bristles. Hence, usually more make-up than actually needed has to be used. Besides, when coming in contact with certain skin care material, in particular colorful cosmetics,

bristles often become filthy and unsightly.

[0010] Further, once a part of said skin care appliances is broken, usually the device as whole has to be disposed.

SUMMARY OF THE INVENTION

[0011] In view of the above, it is an object of the present disclosure to provide a personal care appliance, in particular a personal care attachment, which addresses the above-mentioned issues and drawbacks.

[0012] More particularly, it is desirable to present a personal care attachment that may contribute to producing less garbage.

[0013] Similarly, it is desirable to present a personal care attachment that has a longer lifetime.

[0014] Moreover, it is desirable to present a personal care attachment that can be applied, i.e. attached, to one or more kinds of personal care appliances. In particular, it is desirable to present a personal care attachment that comes without an integrated or specified handle, but rather may be attached to (pre-existing) household appliances like hair removal appliances such as epilators and/or shavers, electrical toothbrushes or skin care appliances, for example.

[0015] Further, it is desirable to present a personal care attachment that works with a minimal amount of personal care agents.

[0016] It is also desirable to present a personal care attachment that prevents from a cross contamination of skin care agents among different appliance locations.

[0017] Further, it is desirable to present a personal care attachment that is capable of avoiding skin irritations and damages to the skin.

[0018] In particular, it is desirable to present a personal care attachment that offers a high user comfort. It would be beneficial to provide a personal care attachment that offers relaxation and vitalization to the user's skin and hence to the user him- or herself.

[0019] In accordance with a first aspect of the present disclosure, there is presented a skin care attachment for a personal care appliance, the skin care attachment comprising:

- an interface configured to connect the attachment to the personal care appliance;
- a base; and
- a skin treatment head, attached to said base, comprising a first sponge region comprising a porous flexible material and a rubber region comprising rubber material.

[0020] The above aspect is based on the insight that rubber material is intrinsically soft. Hence, said material is well suited to avoid irritations and/or damages of the user's skin. On the other hand, rubber material may likewise be used for cleaning, cleansing and/or exfoliation of the user's skin. Furthermore, even when broken, rubber material is free of sharp edges. Ruptures in sponge

regions caused by rubber material can thus be avoided. The lifetime of the appliance's sponge region is thus comparatively long.

[0021] Further, rubber material is barely prone to discolorations and may be cleaned easily. A filthy and unhygienic appearance may therefore be avoided as well.

[0022] Apart from that the rubber material may work as a material barrier to the first sponge region, in particular when the rubber region is made of a continuous piece of rubber material, preferably without any cuts, cut-outs and/or notches, or when the rubber region comprises a piece of rubber material that is divided in a plurality of overlapping segments, i.e. flaps. Accordingly, skin care agents may not penetrate (into) the rubber region. Since rubber material is water-repellant, particularly liquid skin care agents may not penetrate the rubber region. Accordingly, the amount of personal care agents can be reduced. In fact, the rubber region is configured to keep personal care agents in the first sponge region.

[0023] The rubber material may be used for wiping and spreading skin care agents on the user's skin. Again, since rubber material may not absorb any skin care agents, the amount of skin care material used in a body grooming procedure can be reduced.

[0024] Moreover, the rubber material can be used for (micro-)massaging the user's skin and hence cause advanced user comfort.

[0025] The porous flexible material of the sponge region may have a density selected from the range of 2 to 100 kg/m³, especially 5 to 50 kg/m³. Furthermore, the sponge region comprises one or more of a natural sponge and a synthetic sponge. In particular, the porous flexible material of the sponge comprises one or more of polyether (PE), polyvinyl alcohol (PVA), polyester, polyurethanes (PU), and cellulose.

[0026] In certain embodiments the skin treatment head and/or the base may be substantially flat, that is the head may have a flat surface, however the skin treatment head may likewise have a curved surface, such as a curvature in one dimension (like a cylindrical surface), or a curvature in two dimensions, like a spherical or ellipsoidal segment.

[0027] In general, the skin care attachment may be configured as a facial skin care attachment, in particular as a facial skin cleaning attachment. However, the body care attachment may also be used for other skin care applications like applying creams, fluids, make-up, pharmaceuticals and/or fragrance.

[0028] In an exemplary embodiment the skin care attachment comprises a second sponge region, wherein the rubber region is configured to separate the first sponge region and the second sponge region from each other. Hence, the rubber region works as a barrier between the first sponge region and the second sponge region. Skin care material applied to the different sponge regions is thus well separated. This applies even more so in case the rubber region is made of a continuous piece of rubber material or overlapping flaps. As an ex-

ample, the first sponge region may be impregnated with make-up whereas the second sponge region may be impregnated with perfume. The rubber material between both regions then avoids a cross-contamination. In fact the rubber region serves to keep the respective personal care material on and/or inside the separate regions.

[0029] The first and second sponge region may comprise the same porous flexible material, i.e. sponge. However, they may also comprise different kinds of sponges. Particularly, in case of different kinds of sponges in the two regions, said regions are configured to be used for different kinds of applications. For example, the first sponge region may be used for cleansing, whereas the second sponge region may be used to apply make-up.

[0030] In another embodiment the skin care attachment comprises a brush region comprising a plurality of bristles.

[0031] Using bristles, a more efficient cleaning or cleansing of body parts can be executed. Furthermore, the bristles may be used to exfoliate, abrade and/or peel the user's skin. Apart from that, the bristles offer a massaging effect. The bristles may be arranged in tufts, wherein the brush region comprises 5 to 300 tufts, 5 to 100 tufts or a number of tufts in the range of 10 to 50 tufts, for example. The skin treatment head may comprise for example in the range of 10 to 10,000 bristles, such as at least 100 bristles. A tuft may for example include 2 to 50 bristles or 5 to 25 bristles.

[0032] In yet another embodiment of the skin care attachment each of said plurality of bristles has a bristle height relative to the base, a bristle stiffness and a bristle thickness, wherein anyone of the bristle height, the bristle stiffness and the bristle thickness is configured to vary within the brush region.

[0033] In particular, the bristles may have a bristle height relative to said base selected from the range of 2 to 30 mm, in particular 4 to 20 mm. Furthermore, since the height of the bristles may vary across the skin treatment head, the bristle height may be larger at the edge and smaller closer to the center of the skin treatment head. In particular, the bristles may be configured to provide a skin treatment head with a curved surface. This may have the advantage to easily treat skin areas which are generally hard to reach.

[0034] The bristles' thickness may be selected from a range of 10 to 300 μm, in particular 30 to 150 μm. Combined with a predefined bristle thickness, the bristles may then exhibit a flexibility and strength as desired by an average user.

[0035] In a further embodiment, the rubber region is configured to separate the first sponge region and/or the second sponge region from the brush region. This arrangement serves to keep bristles apart from sponge regions. Hence, the rubber region prevents bristles to penetrate into a sponge region and hence to cause damage in a sponge region. The rubber region may be configured as a continuously connected region between the first and/or second sponge region and the brush region. How-

ever, the rubber region may also comprise one or more flaps, in particular overlapping flaps.

[0036] In another exemplary embodiment, the rubber region of the skin care attachment comprises one or more branches, in particular three or four rubber branches. Preferably, these rubber branches divide the skin treatment head in two or more regions. More preferably, the rubber branches are configured to separate sponge regions from each other and/or sponge regions from brush regions.

[0037] In an exemplary embodiment, the one or more rubber branches are configured to extend in radial direction from an axis perpendicular to the base and/or the one or more rubber branches are configured to be shaped as serpentine lines and/or zigzag lines.

[0038] It is conceivable, for example, that the one or more rubber branches are branches of a star-like arrangement of the rubber region, wherein the one or more rubber branches preferably extend in radial direction from the center of the skin treatment head. However, there may also be only a single rubber branch dividing the skin treatment head in two regions, preferably two regions of the same size. Preferably, the rubber branches are arranged in zigzag or serpentine lines in order to provide a firm, i.e. stable, rubber region. Accordingly, the rubber region may not be bent easily even in case the user applies substantial pressure to the skin treatment head.

[0039] Generally, at least in certain embodiments the rubber material comprises nubs. The nubs may support scraping and/or abrading of the skin, cleansing of the skin but they may also be used for a soft brushing or polishing. Apart from that, the nubs may have a massaging effect. Preferably, the nubs have a thickness from 0.5 mm to 5.0 mm, preferably from 1.0 mm to 3.0 mm and a height from 0.5 mm to 5.0 mm, preferably from 1.0 mm to 3.0 mm. The nubs may likewise be used to stimulate the user's skin and hence to vitalize the user's skin and/or to have a relaxing effect.

[0040] In a further embodiment of the skin care attachment, the first sponge region has a sponge height (h_1) relative to the base and the rubber region has a rubber height (h_2) relative to the base, wherein the ratio of the sponge height (h_1) to the rubber height (h_2) is $0.5 \leq h_1/h_2 \leq 2$. This may apply to other sponge regions, in particular the second sponge region, as well. Depending on the user's behavior, different height ratios are preferred. For example, in case the user prefers to use the skin treatment attachment as a massaging device, it is recommended to have the height of the rubber region higher than the height of the sponge region(s). On the other hand, if the user prefers to use the skin care attachment to apply make-up to his/her face, then it is advisable to have the sponge height be higher than the rubber height. Accordingly, if both a massaging effect and an application of a skin care agent are desired, both the sponge height and the rubber height should be more or less the same.

[0041] The brush height (h_3), i.e. the height of certain

or all bristles, may likewise stand in a predefined height relationship with a sponge and/or rubber region. For example, the respective heights may be $0.5 \leq h_1/h_3 \leq 2$ and/or $0.5 \leq h_2/h_3 \leq 2$.

[0042] In another embodiment one or more parts of the skin care attachment are configured to be actuated by an actuator of the personal care appliance, in particular to be rotated, oscillated and/or vibrated by the actuator of the personal care appliance.

[0043] Rotational movements particularly support a fast absorption of the skin care products, such as creams or make-up from the user's skin. Furthermore, skin care products may be spread easily across the skin by rotational movements. Oscillatory and/or vibratory movements may likewise support a fast absorption of skin care products. Furthermore, said movements may have a massaging and/or vitalizing effect to the user.

[0044] In a preferred embodiment, the skin care attachment may further comprise a gearbox and may particularly be attached to said gearbox. The gearbox may be a separate component or may be permanently (pre-)integrated into the attachment. The gearbox is configured to transfer a movement type of an actuator of a personal care appliance into one or more other movement types. For example, an oscillatory movement provided by the actuator may be translated into a rotary movement by said gearbox. Accordingly, the skin care attachment may not be oscillated by the personal care appliance, but rather rotated.

[0045] In general, the gearbox is configured to change speed, direction and/or frequency of a movement provided by an actuator of a personal care appliance.

[0046] In an exemplary embodiment, the skin care attachment comprises a head cover configured to cover the skin treatment head, wherein at least a part of the head cover facing the skin treatment head comprises anyone of an antibacterial coating, in particular a silver based coating, and antiviral coating and an antifungal coating, and/or wherein the head cover is configured to compress the skin treatment head.

[0047] In general, the head cover is configured to protect the skin treatment head. The head cover preferably comprises stable material, for example hard plastic. Therefore, the skin treatment head may be protected from deformation when stored in a handbag, for example. The head cover is further configured to prevent drying out of the skin treatment head in case said head is impregnated with skin care products. Furthermore, the head cover prevents the skin care attachment from making stains when kept in storage.

[0048] Preferably, inside the head cover, i.e. cap, a functional coating is added that is antibacterial, antiviral or antifungal to secure hygiene and/or to extend usage time. Additives such as cosmetics applied to the skin treatment head are therefore protected from direct contact with air so they cannot decay or mar at an early stage.

[0049] The head cover may be screwed on and/or clamped and/or clicked via a clicking mechanism on the

attachment's base. However, the head cover may be attached to the skin care attachment in another way as well. Preferably, the head cover fits closely on the skin treatment head. Further preferably, when the head cover or cap is unscrewed or otherwise removed, the skin treatment head expands and can be used. Accordingly, the skin care attachment can be reduced to a minimum size.

[0050] In a further exemplary embodiment of the skin care attachment, at least the first sponge region is configured to be impregnated with an additive comprising anyone of cosmetic material, skin care material, pharmaceutical material and perfume.

[0051] For example, there may be added a first additive, for example make-up, to the first sponge region and a second additive, for example perfume, to the second sponge region. The skin care attachment may either be sold with an additive pre-integrated or the user may add an additive him- or herself.

[0052] In another aspect of the present disclosure, there is presented a personal care appliance, the personal care appliance comprising:

- a housing;
- an actuator arranged in said housing; and
- a skin care attachment in accordance with at least one embodiment as disclosed herein, wherein the actuator is configured to actuate the attachment, in particular to rotate, oscillate and/or vibrate the attachment.

[0053] Preferably, the personal care appliance is a hand-held appliance.

[0054] Further preferably, the housing of the personal care appliance comprises a tank configured to store an additive and a dispensing mechanism configured to impregnate the at least the first sponge region of the skin care attachment with the additive provided by the tank.

[0055] In yet another aspect of the present disclosure, there is presented a use of a skin care attachment in accordance with at least one embodiment as disclosed herein in a body grooming procedure, comprising:

- attaching the skin care attachment to a housing of a powered personal care appliance,
- applying the attachment of the personal care appliance to a part of a person's skin; and
- causing the actuator of the personal care appliance to actuate the attachment, in particular to rotate, oscillate and/or vibrate the skin treatment head on the person's skin.

[0056] Preferred embodiments of the disclosure are defined in the dependent claims. It shall be understood that the claimed personal care appliance has similar and/or identical preferred embodiments as the claimed skin care attachment and as defined in the dependent claims and as disclosed herein.

BRIEF DESCRIPTION OF THE DRAWINGS

[0057] These and other aspects of the invention will be apparent from and elucidated with reference to the embodiment(s) described hereinafter. In the following drawings

Fig. 1 shows in a perspective top view a first embodiment of a skin care attachment according to the present disclosure,

Fig. 2 shows in a perspective side view a second embodiment of the skin care attachment according to the present disclosure,

Fig. 3 shows in a perspective side view a third embodiment of the skin care attachment according to the present disclosure,

Fig. 4 shows in a perspective side view a fourth embodiment of the skin care attachment according to the present disclosure,

Fig. 5 shows in a perspective side view a fifth embodiment of the skin care attachment according to the present disclosure.

Fig. 6 shows in a perspective side view a sixth embodiment of the skin care attachment according to the present disclosure,

Fig. 7 is a perspective exploded view of a first embodiment of a personal care appliance according to the present disclosure,

Fig. 8 shows a perspective exploded view of a second embodiment of a personal care appliance according to the present disclosure, and

Fig. 9 shows a flow chart of an embodiment of a use of a skin care attachment according to the present disclosure.

DETAILED DESCRIPTION OF THE INVENTION

[0058] Fig. 1 shows in a perspective side view a first embodiment of a skin care attachment according to the present disclosure. In this first embodiment, the skin care attachment 10 is arranged as a cylindrical attachment. The attachment 10 comprises a disk-like base plate 12 which on one side is connected to an interface 14 and on the opposite side is connected to a cylindrical skin treatment head 16. The interface 14 is configured to be attached to a personal care device, in particular to be pushed on a personal care device. The skin treatment head 16 comprises a (first) sponge region 18 and a rubber region 20, wherein the cylindrical sponge region 18 is circumvented by the ring-like rubber region 20.

[0059] In this embodiment, both the sponge region 18 and the rubber region 20 have the same height relative to the base 12. Furthermore, both regions are formed by a single piece of porous, flexible material and a single piece of rubber material, respectively.

[0060] Since the rubber region 20 borders the sponge region 18, skin care additives such as for example liquid soap or creamy make-up on top and/or inside the sponge

region 18, are prevented from laterally leaking out of said region. Hence, the lateral surface of the cylindrical skin treatment head 16 may stay free from any skin care material applied to the sponge in the middle of the skin treatment head 16. Accordingly, when applying the sponge 18 of the skin care attachment 16 to the user's face, skin care agents may not leak out and possibly mess up the user's clothes.

[0061] Fig. 2 shows in a perspective side view a second embodiment of the skin care attachment 10 according to the present disclosure. In this second embodiment the skin treatment head 16 is arranged as a cuboid with two sponge regions, that is a first sponge region 18 and a second sponge region 22, and a rubber region 20. The rubber region 20 separates the two sponge regions 18 and 22, which are of different sizes in this embodiment, from each other.

[0062] In this embodiment, the first sponge region 18 comprises a sponge different from the sponge of the second sponge region 22. The advantage of providing two different sponges, i.e. foams, in the same attachment 10 lies in the fact, that different sponges may be used for different applications. The first sponge region 18 comprises a polyvinyl alcohol having a high water absorption and retention ratio. Accordingly, said sponge 18 may be used to apply liquids in a drip-free way to the user's skin. The second sponge region 22 on the other hand comprises a polyurethane foam particularly configured to exfoliate the user's skin while removing makeup, dead skin cells, dirt or oil by providing a cellular surface texture to gently massage the user and pickup unwanted residues.

[0063] Fig. 3 shows in a perspective side view a third embodiment of the skin care attachment 10 according to the present disclosure. In this third embodiment, the skin care attachment 10 comprises a cylindrical skin treatment head 16 on top of the disk-like base plate 12, wherein the diameter of the skin treatment head 16 is smaller than the diameter of the base 12. The skin treatment head 16 of this embodiment comprises four regions: a first sponge region 18, a second sponge region 22, a rubber region 20 and a brush region 24. The brush region 24 circumferentially surrounds the other three regions.

[0064] Concerning the height relative to the base 12, the brush region 24 is lower than the other three regions. Accordingly, the bristles of the brush region 24 will only touch the user's skin if the skin care attachment 10 is applied with a particular pressure to the user's skin. Therefore, a user may decide on his/her own whether he or she wishes to treat his/her skin with or without brushes. In particular, users with sensitive skin may avoid a contact of the brushes with the skin. In fact, a pore deep cleaning may already be achieved with the sponge and rubber regions. However, the brushes may provide an additional stimulation of the local blood flow.

[0065] The rubber region 20 is arranged in a cylindrical manner with two punch outs comprising the two sponge regions 18 and 22. Between the two sponge regions 18 and 22, the rubber region is arranged in a zigzag line.

This arrangement has the advantage that even liquids or other additives applied to the sponges or soaked in by the sponges of the first and/or second sponge region can be applied to the user's skin in a drip-free manner because the rubber region prevents from a lateral leakage i.e. a leaking through a plane perpendicular to the base plate. Moreover, the two sponge regions 18 and 22 are kept apart by the rubber region 20. Therefore, additives applied to the first sponge region 18 may not leak out to the second sponge region 22 and vice versa.

[0066] In order to provide a total sponge area which is large, the part of the rubber region 20 separating the two sponge regions is configured to be thin. However, in order to still provide a stable rubber region 22, the rubber region 22 is arranged as a zigzag line between the two sponge regions.

[0067] Fig. 4 shows in a perspective side view a fourth embodiment of the skin care attachment 10 according to the present disclosure. In this embodiment, the skin care attachment 10 further comprises a head cover 26. The head cover 26 is configured to be screwed on the skin care attachment 10. Accordingly, the head cover 26 and the base 12 of the skin care attachment 10 each comprise five regions: a rubber region 20, which is arranged in a star-like formation, and four sponge regions 18, 22, 28 and 30, wherein the sponge regions are separated from each other by branches, also called flaps, of the rubber region 20. The sponge regions in this embodiment are pre-impregnated with pharmaceutical material, such as additives against neurodermatitis, acne, melanoma, psoriasis, and/or wards, for example. However, the sponges may also be solely impregnated with cosmetic material such as make-up or a moisturizing cream. In order for the impregnation materials to maintain their effect on the skin, the inner parts of the head cover/cap 26 are provided with a functional coating, in particular with an antibacterial coating.

[0068] In accordance with the exemplary embodiment of the skin care attachment 10 illustrated in Fig. 3, the fifth embodiment of the skin care attachment 10 illustrated in Fig. 5 comprises a skin treatment head 16 with a rubber region 20, two sponge regions 18 and 22 and a brush region 24.

[0069] The skin treatment head 16 is arranged as a truncated cone, wherein the lateral area and the deck area are both configured to be applied to the user's skin. Accordingly, the skin treatment head 16 has a curved surface with a curvature in two dimensions. The height of the bristles in the brush region 24, the sponges in the sponge regions 18 and 22 and the rubber region 20 relative to the base 12 is adapted to form said curved surface. In fact, the lateral surface of the skin treatment head 16 comprises bristles of different heights. In fact, the height of the bristles decreases with increasing distance from the center of the skin treatment head 16. At the same time, the brush region 24 and the rubber region 20 are chamfered at the lateral surface. Due to its geometry,

not only the deck surface of the skin treatment head 16 may be used for treating the user's skin but also the lateral surface of the skin treatment head 16. Therefore, the effective skin treatment area is enlarged. Apart from that, the user does not have to take much care about how he holds the skin care attachment 10. In fact, in this fifth embodiment, the rubber region 20 comprises nubs not only the back surface but also on the lateral surface. Accordingly, a stimulating effect provided by the nubs may also be achieved if the user applied the lateral side of the skin care attachment to his/her skin.

[0070] Fig. 6 shows in a perspective side view a sixth embodiment of the skin care attachment according to the present disclosure. In this embodiment, the skin care attachment 10 is not configured to be rotated or moved otherwise as a whole, but only in parts. In fact, only the skin treatment head 16 is configured to be rotated by an actuator of a personal care appliance, i.e. personal care device, the skin care attachment may be attached to. The skin treatment head 16 is arranged as a roll in this embodiment similar to an epilator roll or a roll of a peeling device. The roll 16 is mounted with its front side and end side on the base 12 of the skin care attachment 10, wherein the roll 16 is configured to rotate around an axis joining suspension points on said front side and end side.

[0071] On the edge of the roll 16, the roll 16 comprises two brush regions 24 and 32 which are adjacent to a rubber region 20 and a rubber region 34, respectively. The skin treatment head 16 further comprises two more rubber regions 36 and 38 as well as three sponge regions, i.e. a first sponge region 18, a second sponge region 22 and a third sponge region 30. The sponge regions and brush regions are separated from each other by a respective rubber region. The rubber regions comprise overlapping rubber flaps in this embodiment, wherein the flaps are configured to keep additives in the sponge and brush regions apart. Furthermore, the flaps support wiping of additives on the user's skin.

[0072] Fig. 7 is a perspective exploded view of a first embodiment of personal care appliance 40 comprising a housing 42, an actuator 44 (not shown) arranged in said housing 42, and two different attachments 46 and 10 which may be attached to said housing 42. Both attachments 46 and 10 comprise an interface configured to connect the attachment to the personal care device 40, a base 12, and a skin treatment head 16, attached to said base 12.

[0073] The housing 42 is configured as a handle in this embodiment. In fact, the housing 42, is represented by a handle of an epilator. Accordingly, the attachment 46 is an epilator attachment. The attachment 10 on the other hand comprises a skin treatment head 16, a base 12, an interface 14, a gearbox 48 and a head cover 26, wherein the skin treatment head 16 comprises two sponge regions 18 and 22 separated by a rubber region 20. The rubber region is arranged as a serpentine line in this embodiment.

[0074] The gearbox 48 is used to transfer the rotary

movements provided by the actuator (not shown) inside the handle 42 in rotary movements around another axis. While the actuator is configured to rotate the epilator roll of the epilator attachment 46 around an axis parallel to the epilator attachment's base plate 12, the gearbox 48 is configured to transfer said movement to a rotary movement of the skin care attachment 10 around an axis perpendicular to the skin care attachment's base 12 (when the gearbox 48 and the skin care attachment 10 are attached to the handle 42).

[0075] The form of the head cover 26 is adapted to the cylindrical form of the skin treatment head 16. In particular, the height of the head cover also comprises a cylindrical surface form. However, the height of head cover is smaller than the height of the skin treatment head 16. Therefore, when the head cover is clicked on the skin treatment head 16 of skin care attachment 10, the skin treatment head 16 is compressed. This way, the personal care appliance 40 can even be stored in small handbags. Furthermore, the head cover protects the skin treatment head 16 from drying out or being damaged by environmental effects.

[0076] Fig. 8 shows a perspective exploded view of a second embodiment of a personal care appliance 40 according to the present disclosure. The personal care appliance 40 is configured as a hand-held device comprising a housing 42, i.e. a handle, and a skin care attachment 10, which can be attached to the housing 42. Furthermore, the housing 42 comprises a tank (not shown) configured to be filled with liquid, creamy and/or oily additives such as for example skin care lotions, make-up, liquid soap or liquid pharmaceuticals. Apart from that the housing 42 comprises a dispensing mechanism comprising four pipes 44, 46, 48 and 50 which are configured to lead the additives inside the tank to four nozzles 52, 54, 56 and 58 arranged in the base 12 of the skin care attachment 10. The nozzles 52, 54, 56 and 58 are configured to impregnate the (first) sponge region 18 of the skin treatment head 16 with said additives. Accordingly, the user does not have to apply make-up, for example, to the skin treatment head 16 by hand, but rather may press a button 60 on the handle to activate a flow of additives from the tank to the first sponge region 18.

[0077] Fig. 9 shows a flow chart of an embodiment of a use of a skin care attachment according to the present disclosure.

[0078] In a first step S2 the skin care attachment 10 is attached to a housing 42 of a powered personal care appliance 40. In a next step S4 the skin care attachment 10, in particular the skin treatment head 16 of the skin care attachment, of the personal care appliance 40 is applied to the user's skin, for example to the user's facial skin. In another step S6 the actuator of the personal care appliance 40 is activated and therefore caused to actuate the attachment 10. In an further optional step S8 the user may further activate a dispensing mechanism of the personal care appliance to dispense one or more additives from a user's tank inside the housing 42 of the personal

care appliance.

[0079] While the invention has been illustrated and described in detail in the drawings and foregoing description, such illustration and description are to be considered illustrative or exemplary and not restrictive; the invention is not limited to the disclosed embodiments. Other variations to the disclosed embodiments can be understood and effected by those skilled in the art in practicing the claimed invention, from a study of the drawings, the disclosure, and the appended claims.

[0080] In the claims, the word "comprising" does not exclude other elements or steps, and the indefinite article "a" or "an" does not exclude a plurality. A single element or other unit may fulfill the functions of several items recited in the claims. The mere fact that certain measures are recited in mutually different dependent claims does not indicate that a combination of these measures cannot be used to advantage.

[0081] Any reference signs in the claims should not be construed as limiting the scope.

Claims

1. A skin care attachment (10) for a personal care appliance (40), the skin care attachment (10) comprising
 - an interface (14) configured to connect the attachment (10) to the personal care appliance (40);
 - a base (12); and
 - a skin treatment head (16), attached to said base (12), comprising a first sponge region (18) comprising a porous flexible material and a rubber region (20) comprising rubber material.
2. The skin care attachment (10) as claimed in claim 1, further comprising a second sponge region (22), wherein the rubber region (20) is configured to separate the first sponge region (18) and the second sponge region (22) from each other.
3. The skin care attachment (10) as claimed in claim 1 or 2, further comprising a brush region (24) comprising a plurality of bristles.
4. The skin care attachment (10) as claimed in claim 3, wherein each of said plurality of bristles has a bristle height relative to the base, a bristle stiffness and a bristle thickness, wherein any one of the bristle height, the bristle stiffness and the bristle thickness is configured to vary within the brush region (24).
5. The skin care attachment (10) as claimed in claim 3 or 4, wherein the rubber region (20) is configured to separate the first sponge region (18) and/or the second sponge region (22) from the brush region (24).
6. The skin care attachment (10) as claimed in any one of claims 1 to 5, wherein the rubber region (24) comprises one or more rubber branches, in particular three or four rubber branches.
7. The skin care attachment (10) as claimed in claim 6, wherein the one or more rubber branches are configured to extend in radial direction from an axis perpendicular to the base (12) and/or wherein the one or more rubber branches are configured to be shaped as serpentine lines and/or zigzag lines.
8. The skin care attachment (10) as claimed in claim 6 or 7, wherein the one or more rubber branches are branches of a star-like arrangement of the rubber region (24), and wherein the one or more rubber branches preferably extend in radial direction from the center of the skin treatment head (16).
9. The skin care attachment (10) as claimed in any one of claims 1 to 8, wherein the rubber material comprises nubs.
10. The skin care attachment (10) as claimed in any one of claims 1 to 9, wherein the first sponge region (18) has a sponge height (h_1) relative to the base (12) and wherein the rubber region (20) has a rubber height (h_2) relative to the base (12), wherein the ratio of the sponge height (h_1) to the rubber height (h_2) is $0.5 \leq h_1/h_2 \leq 2$.
11. The skin care attachment (10) as claimed in any one of claims 1 to 10, wherein one or more parts of the attachment (10) are configured to be actuated by an actuator of the personal care appliance (40), in particular to be rotated, oscillated and/or vibrated by the actuator of the personal care appliance (40).
12. The skin care attachment (10) as claimed in any one of claims 1 to 11, further comprising a head cover (26) configured to cover the skin treatment head (16), wherein at least a part of the head cover (26) facing the skin treatment head (16) comprises any one of an antibacterial coating, in particular a silver based coating, and antiviral coating and an antifungal coating, and/or wherein the head cover (26) is configured to compress the skin treatment head (16).
13. The skin care attachment (10) as claimed in any one of claims 1 to 12, wherein at least the first sponge region (18) is configured to be impregnated with an additive comprising any one of cosmetic material, skin care material, pharmaceutical material and perfume.
14. A personal care appliance (40), the personal care appliance (40) comprising

- a housing (42);
- an actuator arranged in said housing (42); and
- an attachment (10) as claimed in any one of claims 1 to 13, wherein the actuator is configured to actuate the attachment (10), in particular to rotate, oscillate and/or vibrate the attachment (10).

15. A use of a skin care attachment (10) as claimed in any one of claims 1 to 14 in a body grooming procedure, comprising:

- attaching the skin care attachment (10) to a housing (42) of a powered personal care appliance (40),
- applying the attachment (10) of the personal care appliance (40) to a part of a person's skin; and
- causing the actuator of the personal care appliance (40) to actuate the attachment (10), in particular to rotate, oscillate and/or vibrate the skin treatment head (16) on the person's skin.

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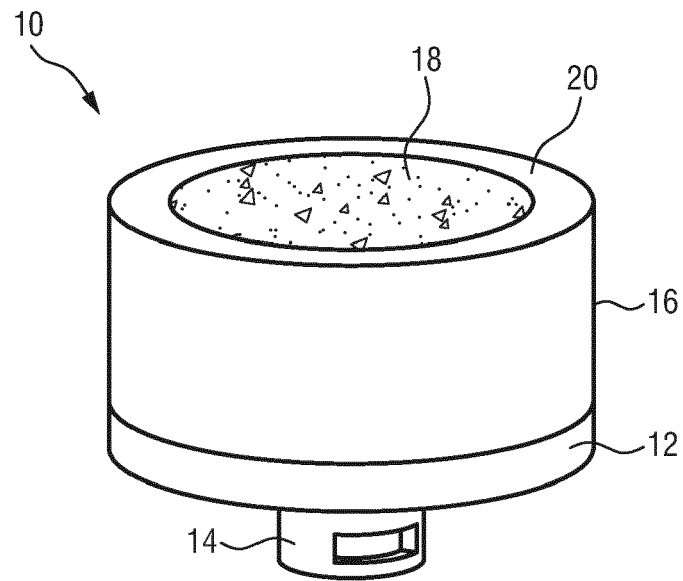


FIG.1

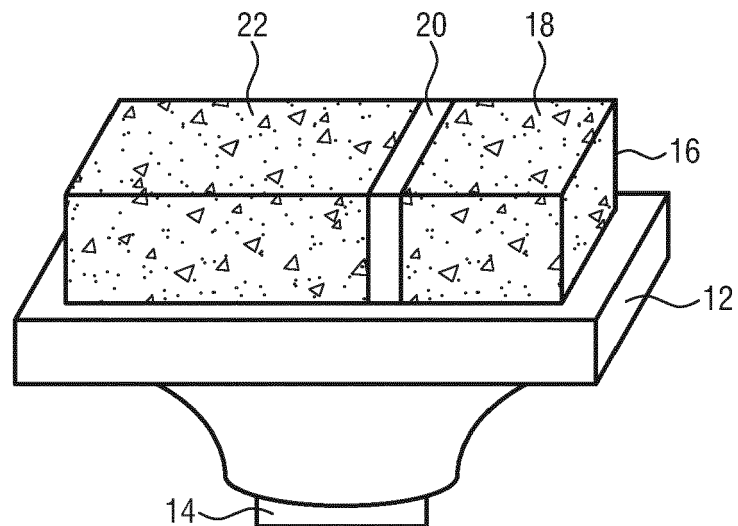


FIG.2

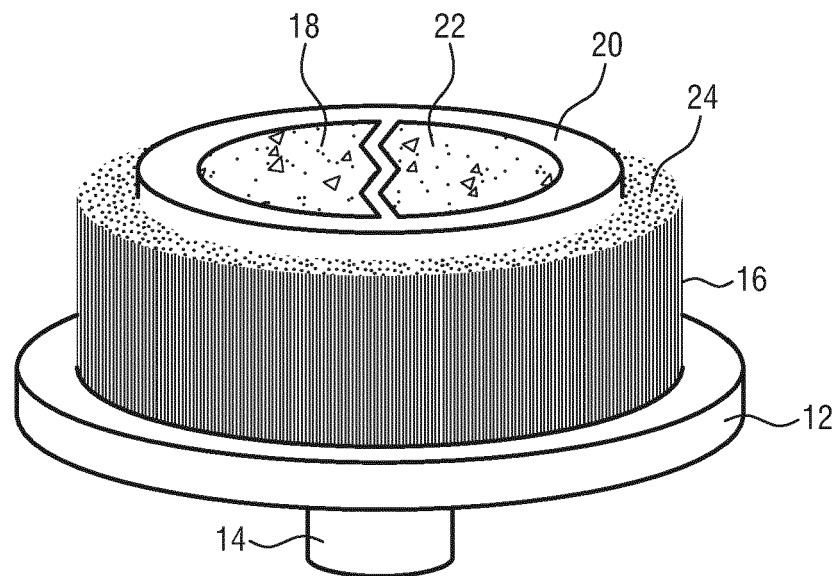


FIG. 3

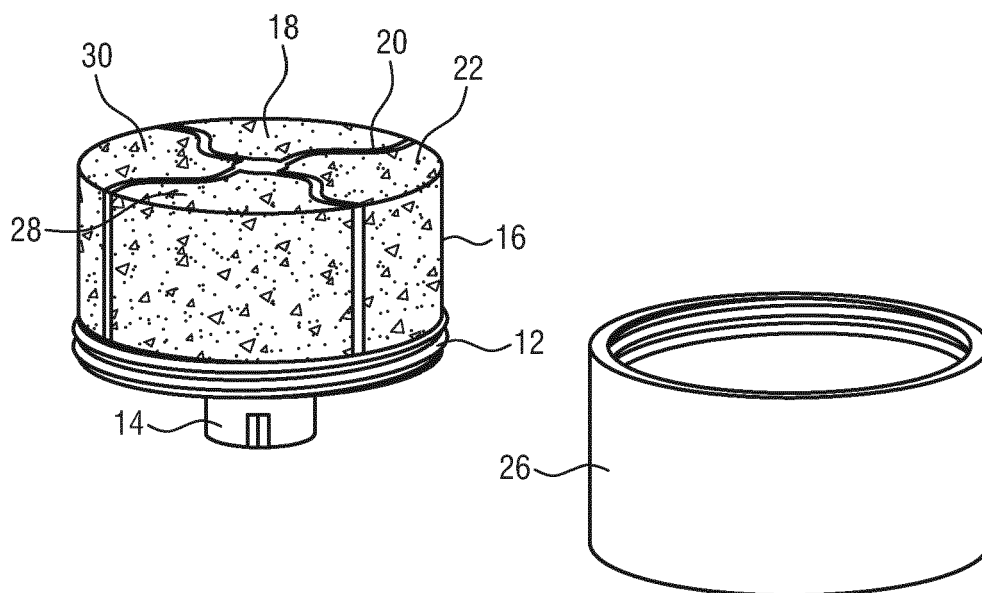


FIG. 4

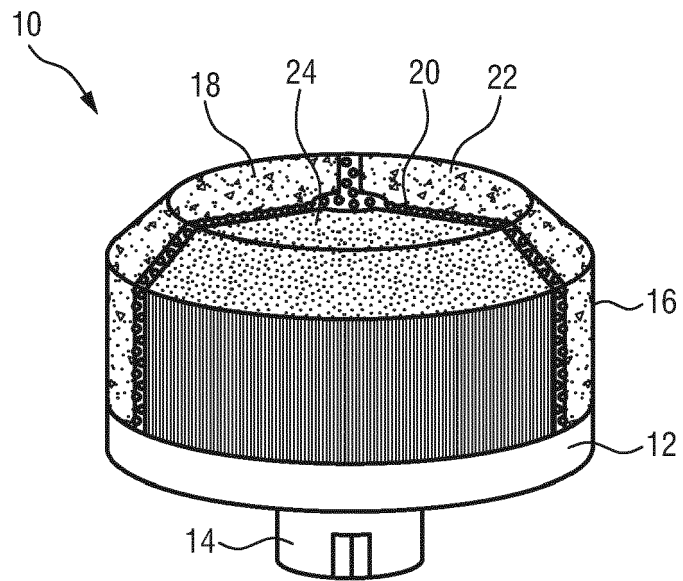


FIG. 5

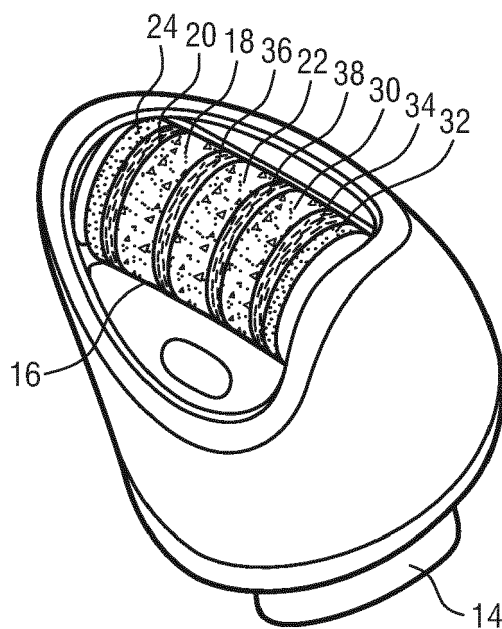


FIG. 6

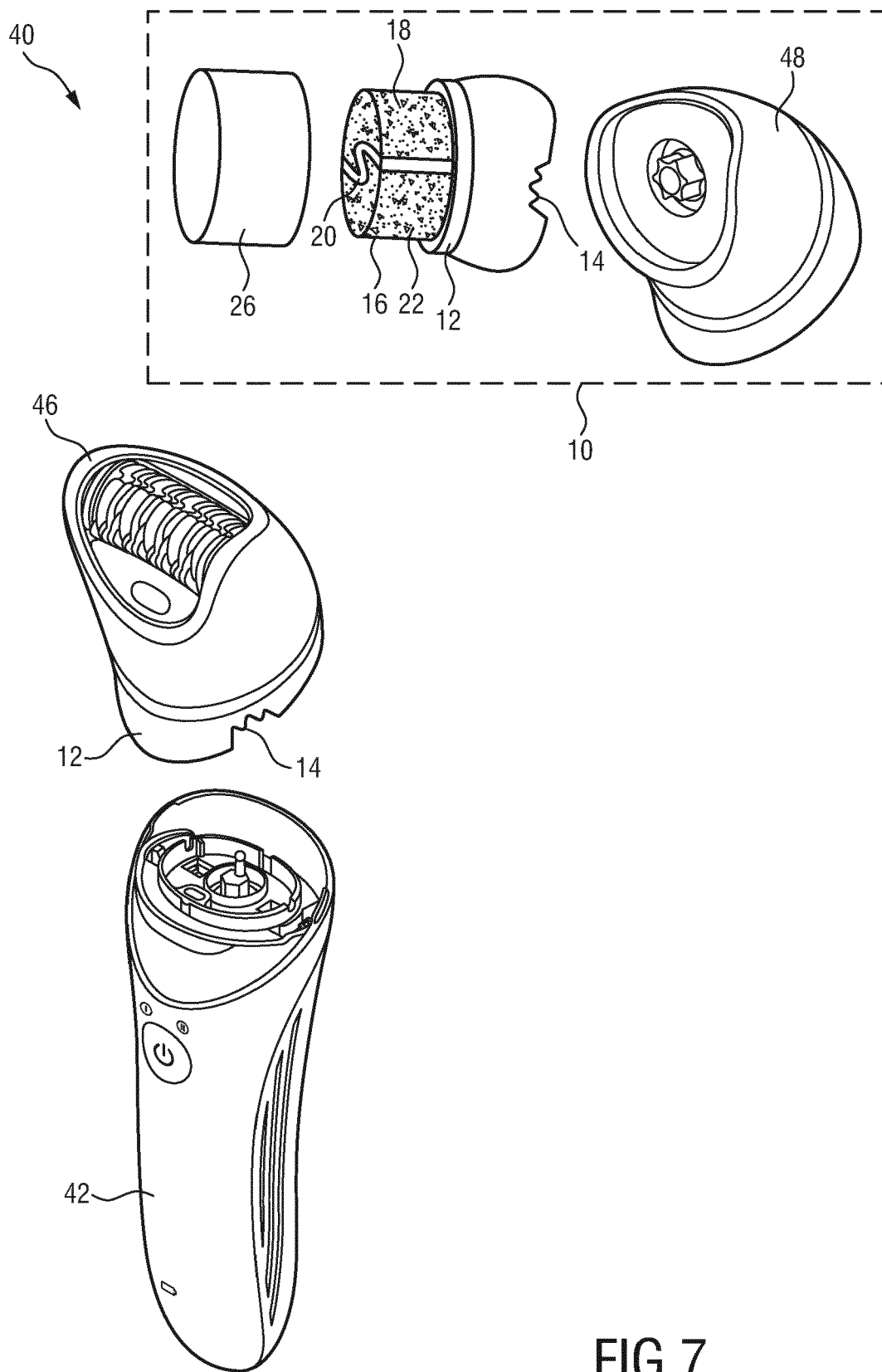


FIG.7

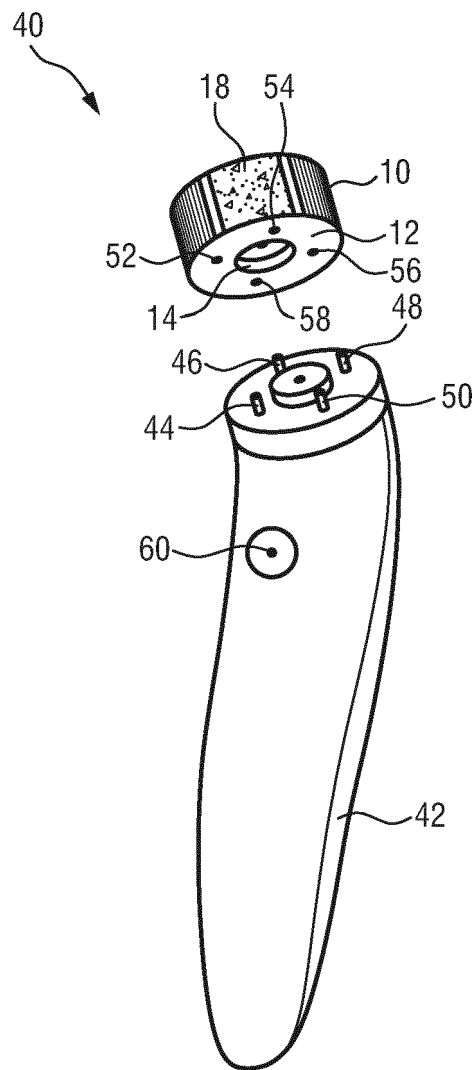


FIG.8

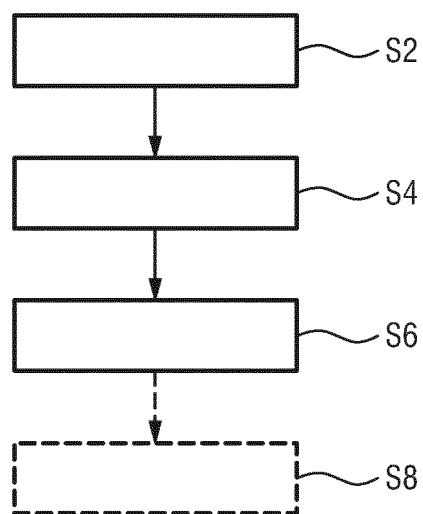


FIG.9



EUROPEAN SEARCH REPORT

Application Number
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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2015/141884 A1 (THIEBAUT LAURE [FR] ET AL) 21 May 2015 (2015-05-21) * paragraphs [0110] - [0121]; figures 1-4 *	1-11, 13-15	INV. A46B9/06 A46B9/00 A46B13/00
X	US 9 301 657 B2 (OREAL [FR]) 5 April 2016 (2016-04-05) * column 2 - column 6; figures 1-10 *	1-11, 13-15	
X	US 9 801 448 B1 (JAKUBOW RAFAEL [US]) 31 October 2017 (2017-10-31) * columns 6-8; figures 1,5,9, 10 *	1-11, 13-15	
A	US 2005/277950 A1 (PILCHER KENNETH A [US] ET AL) 15 December 2005 (2005-12-15) * paragraphs [0052], [0071], [0082], [0104]; figure 15 *	1-11, 13-15	
			TECHNICAL FIELDS SEARCHED (IPC)
			A46B
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		1 April 2019	Horrix, Doerte
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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Application Number

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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

2-11, 13-15(completely); 1(partially)

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).

**LACK OF UNITY OF INVENTION
SHEET B**

Application Number

EP 18 19 4803

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 2-11, 13-15(completely); 1(partially)

A skin care attachment comprising two sponge regions separated by a rubber region.

The problem to be solved with this arrangement of rubber and sponge regions is to improve treatment of the skin.

2. claims: 12(completely); 1(partially)

A skin care attachment comprising a head cover comprising an antibacterial coating.

The problem to be solved with this antibacterial head cover is to secure hygiene and/or to extend usage time.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 18 19 4803

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

01-04-2019

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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