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(54) **EFFICIENCY ENHANCING DEVICE FOR REPLACEABLE COSMETIC SKINCARE PADS**

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(57) **ABSTRACT**

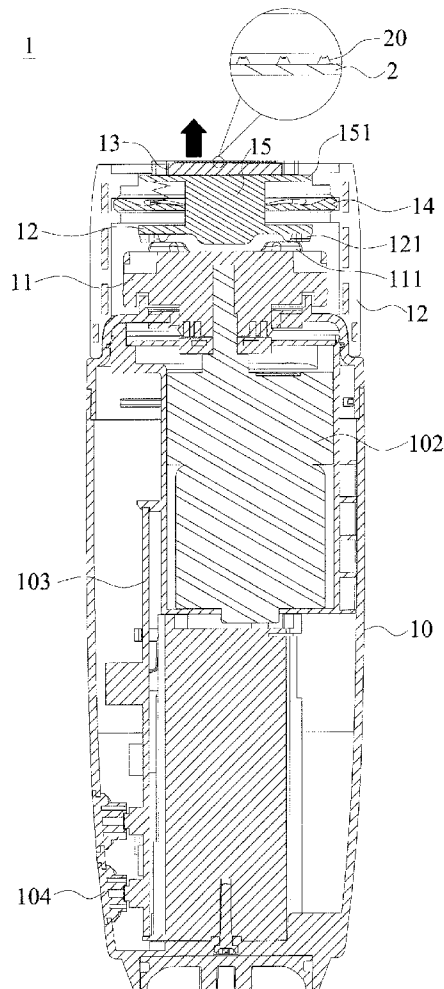
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An efficiency enhancing device for replaceable cosmetic skincare pads includes a main body with a containing space, a motor installed in the main body, a driving platform installed at the top end of the main body and electrically connected to the motor and having first ribs on a surface of the driving platform, a propping platform installed at a position corresponding to the driving platform and having bumps formed on a side corresponding to the first ribs, such that the driving platform can be driven by the motor to drive the propping platform to move up and down, and a carrying platform disposed above the propping platform for installing the skincare pad. The carrying platform moves up and down by the propping platform and the driving platform to touch a user's skin.

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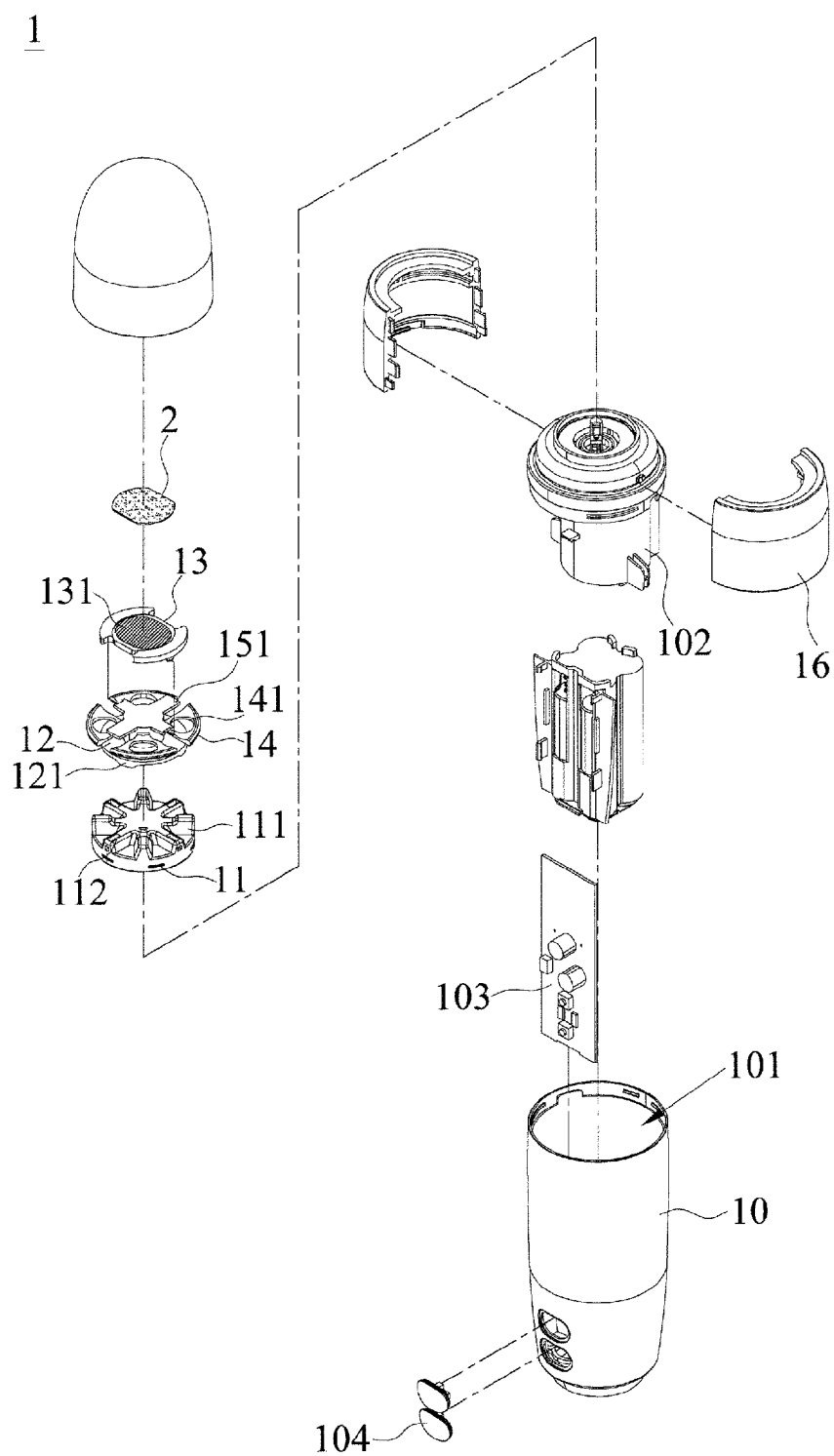


Fig. 1

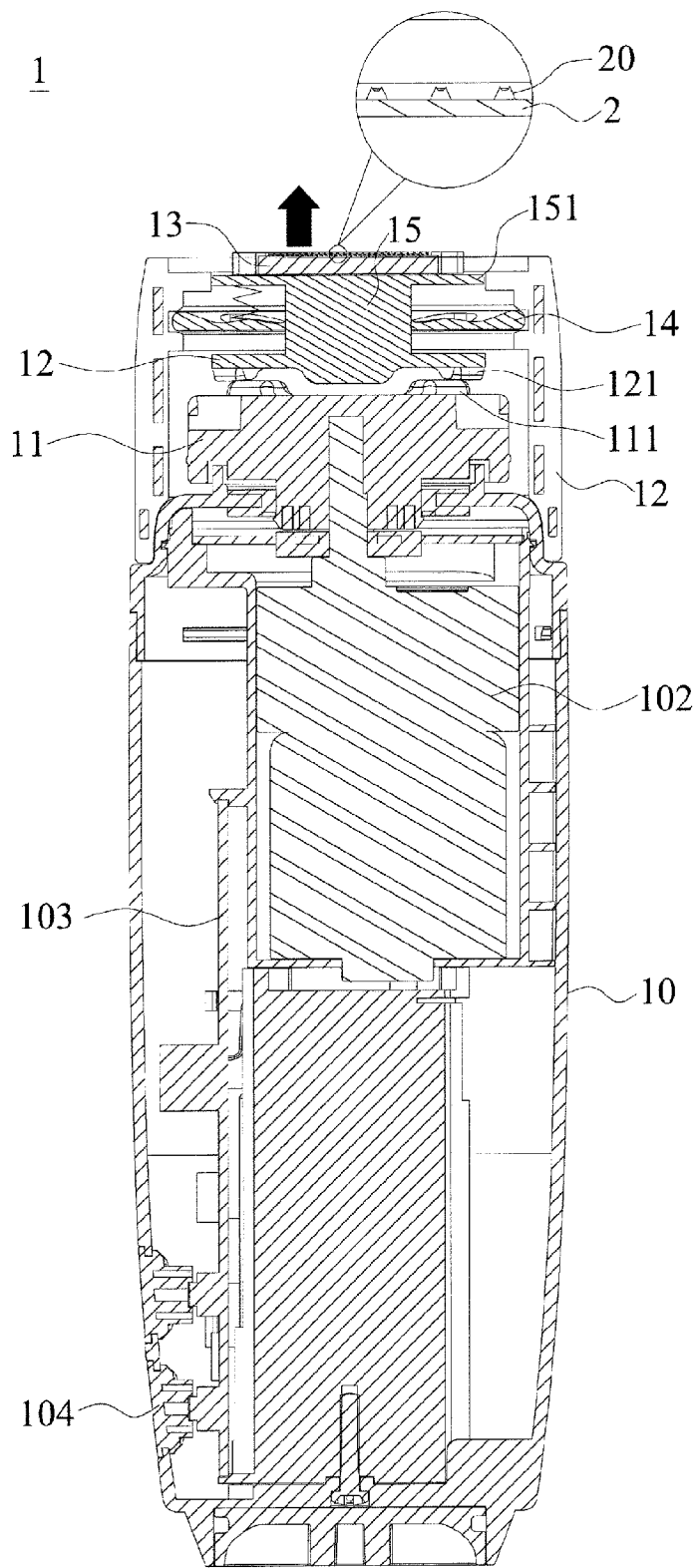


Fig. 2

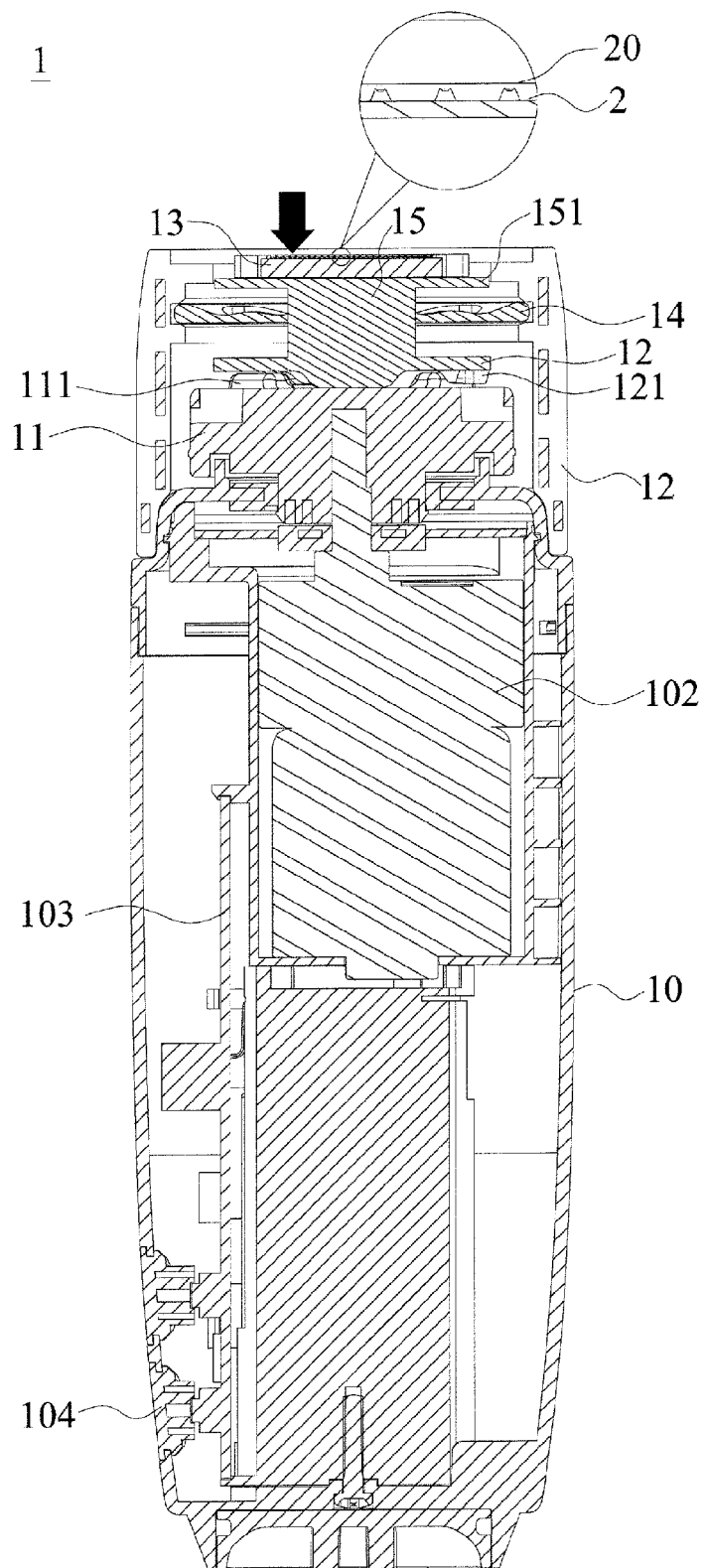


Fig. 3

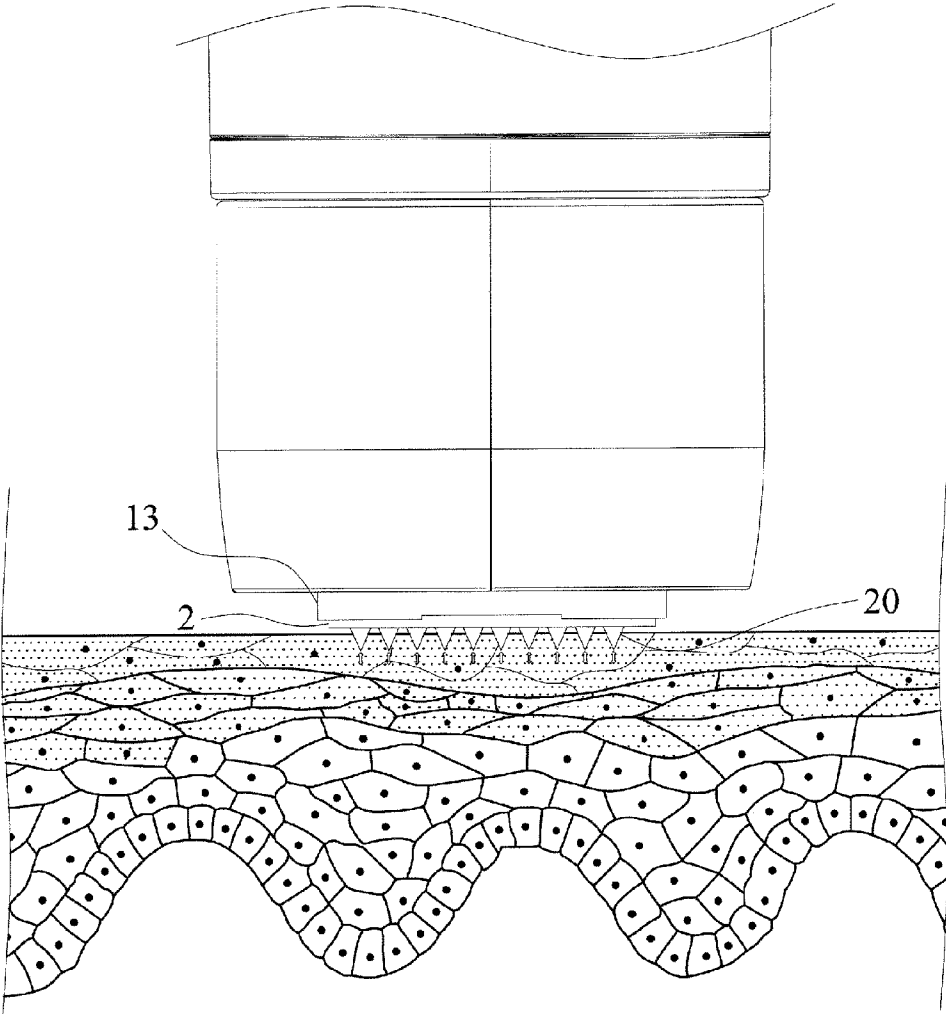


Fig. 4

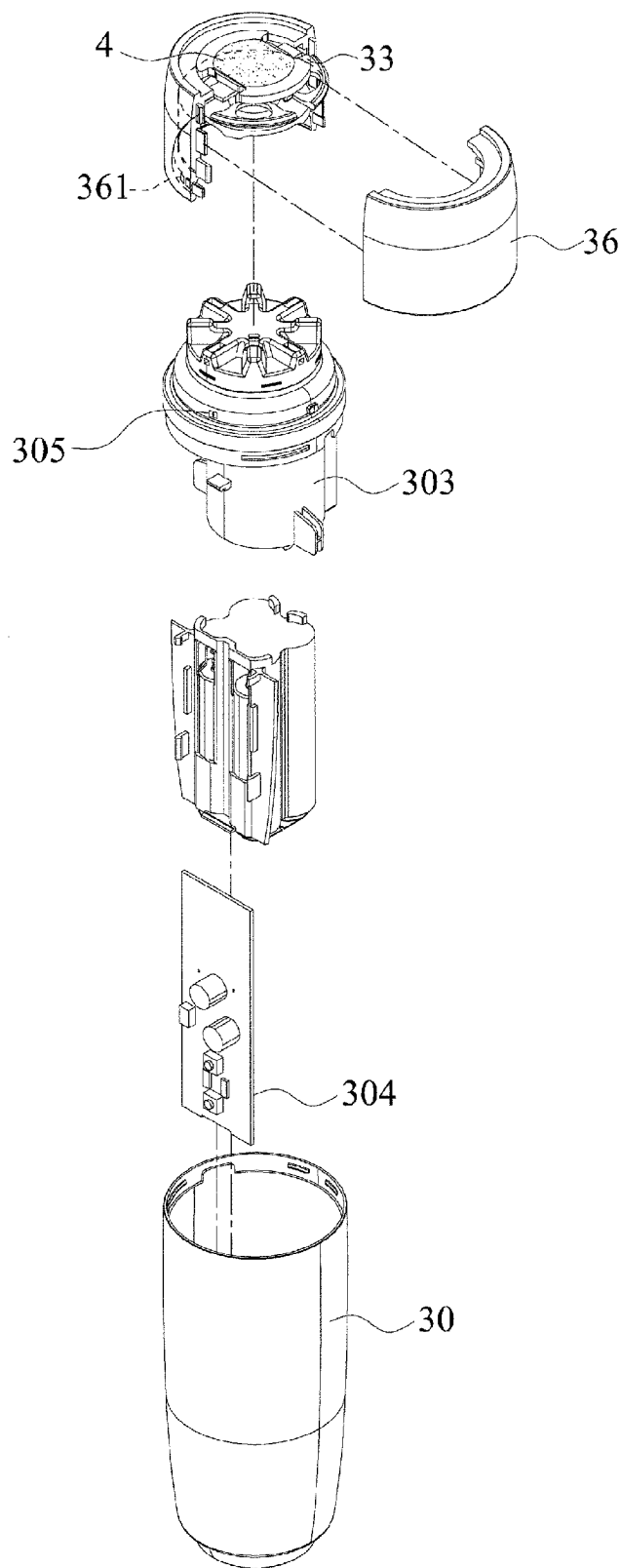


Fig. 5

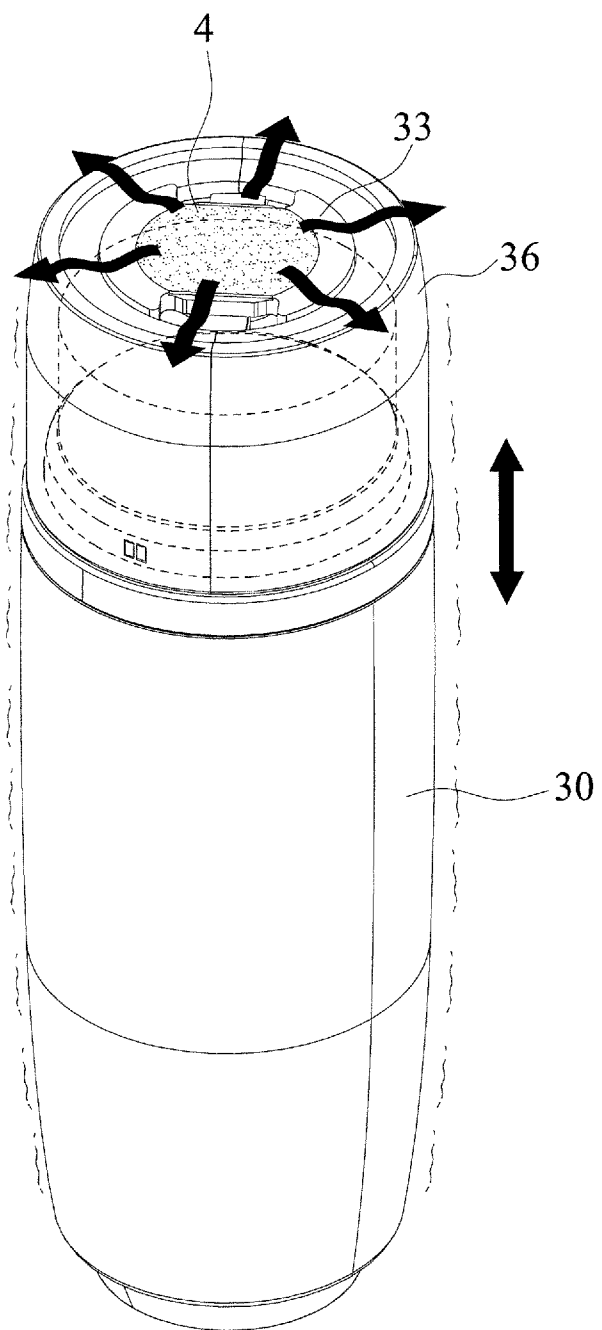


Fig. 6

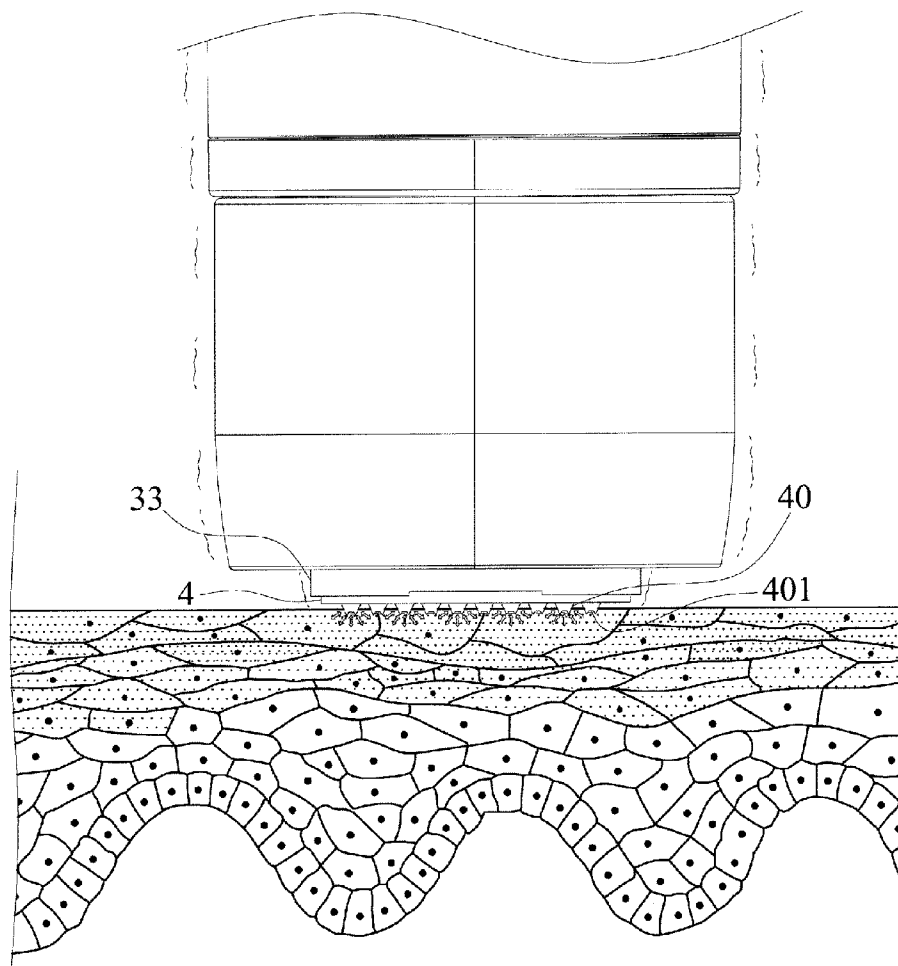


Fig. 7

EFFICIENCY ENHANCING DEVICE FOR REPLACEABLE COSMETIC SKINCARE PADS

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This non-provisional application claims priority under 35 U.S.C. § 119(a) on Patent Application No(s). 102202686 filed in Taiwan, R.O.C. on Feb. 6, 2013, the entire contents of which are hereby incorporated by reference.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to a design of cosmetic skincare devices, and more particularly to an efficiency enhancing device for replaceable cosmetic skincare pads.

[0004] 2. Description of the Related Art

[0005] Cosmetic industry is currently one of the booming industries, and a growing number of women and men use facial mask to achieve the effects of keeping a more radiant appearance and maintaining a better skin quality. Thus, various different types of facial masks such as cloth membranes, creamy masks and gel masks are introduced continuously to the market.

[0006] In addition to the external application of maintenance solutions for nourishment, skin maintenance can be achieved by promoting blood circulation directly by massages. For example, messages by pressing around eye sockets can assist blood circulation. In most traditional methods, a maintenance solution is applied to skin, and then a desired maintaining position is massaged by hands to relax the skin as well as allowing the maintenance solution to be absorbed more easily, but this method is very inconvenient, since users have to wash away the maintenance solution remained on their hands after use.

[0007] Further, the aforementioned facial mask is directly coated or deposited onto facial skin to achieve the effects of maintaining, whitening and activating the skin. However, the penetration depth is very limited after the facial mask is contacted with the skin. Maintenance ingredients simply remain on the surface of a user's skin and cannot penetrate into the user's skin and cannot be absorbed by the skin. Furthermore, most creamy masks or gel masks require users to wash the facial skin after use, and it takes time to apply the mask uniformly on the skin, and thus causing tremendous inconvenience to users.

[0008] In view of the aforementioned drawbacks of the conventional facial masks, the inventor of the present invention developed an efficiency enhancing device for replaceable cosmetic skincare pads combined with the effects of maintenance and massage, and such device not only enhances the absorption of the maintenance solution, but also activates the skin and omits the coating steps, so as to improve the convenience of use.

SUMMARY OF THE INVENTION

[0009] Therefore, it is a primary objective of the present invention to provide an efficiency enhancing device for replaceable cosmetic skincare pads, and when the efficiency enhancing device is used, a skincare pad is placed on a carrying platform, and a propping platform and a driving platform are provided for moving the carrying platform up and down to allow the maintenance solution of skincare pad to be

absorbed by a user's skin successfully and also achieve the effects of activating the skin, improving the blood circulation of the skin, and promoting the metabolism of the skin as well as providing an easy replacement to improve the convenience of use.

[0010] To achieve the aforementioned objective, the present invention provides an efficiency enhancing device for replaceable cosmetic skincare pads, and the efficiency enhancing device is provided for installing a skincare pad and comprises: a main body, having an opening formed at an end of the main body and a containing space defined in the main body, and the containing space containing a motor and a control circuit board, and the motor being electrically coupled to the control circuit board; a driving platform, coupled to the opening, and electrically coupled to the motor, and having a plurality of first ribs disposed on a surface of the driving platform; a propping platform, disposed at a position corresponding to the driving platform, and having a plurality of bumps disposed on a side of the propping platform and corresponding to the first ribs respectively, and the driving platform being driven by the motor to link the propping platform to displace up and down; and a carrying platform, for carrying the skincare pad, and after the top end of the propping platform, the propping platform and the main body are assembled, the propping platform is displaced up and down and drive the carrying platform to move repeatedly in a vertical direction, so as to improve the absorption effect of the skincare pad and achieve a skin activation effect.

[0011] Wherein, the propping platform has a connecting shaft installed on a side of the propping platform and corresponding to the carrying platform, and the connecting shaft has at least one support plate installed at the top end of the connecting shaft for and supporting the carrying platform.

[0012] In addition, the present invention further comprises a plurality of elastic elements installed on a side of the propping platform, such that the tenacity of the elastic elements produces a reaction force acted onto the propping platform when the propping platform moves upward. The skincare pad has a plurality of protrusions formed on a surface of the skincare pad, and each protrusion is in a sharp cone shape, and the protrusions are made of a matter selected from the collection of polyanhydride (PAH), polylactic acid (PLA), polyglycolic acid (PGA), poly(lactic-co-glycolic acid) (PLGA) and a combination thereof.

[0013] Wherein, the motor is a rotary motor, and after the motor is started to rotate the driving platform, and the first ribs have a recessed space formed between the bumps, the propping platform is situated at a downward movement status, after the driving platform is rotated to move a distance, and the first ribs are contacted with the bumps, the propping platform moves upward by a propping action to drive the carrying platform to move quickly in a vertical direction. Further, the main body has a plurality of press buttons electrically coupled to the control circuit board for controlling a start status of the motor.

[0014] To protect the carrying platform, the propping platform and the elastic elements, the present invention further comprises a housing covered onto an external side of the propping platform.

[0015] In another preferred embodiment, the carrying platform is made of acrylonitrile butadiene styrene (ABS) and the skincare pad is integrally formed, and the motor is a vibration motor provided for vibrating the driving platform and driving the propping platform and the carrying platform to vibrate the

carrying platform at a high speed. In an electric conduction method, the housing includes a first electric contact therein, and the main body has a second electric contact, corresponding to the first electric contact, and the second electric contact is electrically coupled to the control circuit board. After the housing and the main body are assembled, the first electric contact is connected to the second electric contact to start the motor.

BRIEF DESCRIPTION OF THE DRAWINGS

- [0016] FIG. 1 is an exploded view of a first preferred embodiment of the present invention;
- [0017] FIG. 2 is a schematic view of a first application of the first preferred embodiment of the present invention;
- [0018] FIG. 3 is a schematic view of a second application of the first preferred embodiment of the present invention;
- [0019] FIG. 4 is a schematic view of an application of a skincare pad in accordance with the first preferred embodiment of the present invention;
- [0020] FIG. 5 is an exploded view of a second preferred embodiment of the present invention;
- [0021] FIG. 6 is a schematic view of an application of the second preferred embodiment of the present invention; and
- [0022] FIG. 7 is a schematic view of an application of a skincare pad in accordance with the second preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

- [0023] The technical content of the present invention will become apparent with the detailed description of preferred embodiments and the illustration of related drawings as follows.
- [0024] With reference to FIGS. 1 to 4 for an exploded view and schematic views of two different applications of an efficiency enhancing device for replaceable cosmetic skincare pads, and a schematic view of an application of a skincare pad in accordance with the first preferred embodiment of the present invention respectively, the efficiency enhancing device 1 for replaceable cosmetic skincare pads, and the efficiency enhancing device is provided for installing a skincare pad 2 to enhance the absorption effect of the skincare pad 2 to a user and achieve the effect of activating the user's skin. The efficiency enhancing device 1 for replaceable cosmetic skincare pads comprises a main body 10, a driving platform 11, a propping platform 12 and a carrying platform 13.
- [0025] The main body 10 has an opening formed at an end, and a containing space 101 defined in the main body 10, and the containing space 101 contains a motor 102 and a control circuit board 103, and the motor 102 is electrically coupled to the control circuit board 103. In this preferred embodiment, the motor 102 is a rotary motor, and the main body 10 has a plurality of press buttons 104 electrically coupled to the control circuit board 103 for controlling the ON/OFF status of the motor 102. The user can press the press buttons 104 to turn on or off the motor 102.
- [0026] The driving platform 11 is coupled to the opening and electrically coupled to the motor 102 and has a plurality of first ribs 111 disposed on a surface of the driving platform 11, such that the motor 102 can be electrically conducted to drive the driving platform 11 to rotate. Wherein, the driving platform 11 also has a plurality of second ribs 112 disposed on both sides of the first ribs 111 respectively.

- [0027] The propping platform 12 is installed at a position corresponding to the driving platform, and has a plurality of bumps 121 disposed on a side of the propping platform 12 and corresponding to the first ribs 111. After the motor 102 is turned on to rotate the driving platform 11, the first ribs 111 touch the bumps 121 to move the propping platform 12 up and down by a pushing force.
- [0028] The carrying platform 13 is coupled to the top of the propping platform 12 for installing the skincare pad 2, and the carrying platform 13 has an adhesion portion 131 for attaching and fixing the skincare pad 2 on the carrying platform by glue. After the driving platform 11 is driven and rotated by the motor 102, the first ribs 111 move in a recessed space formed between the bumps 121 and to touch the bumps 121 to link the propping platform 12 to drive the carrying platform 13 to move upward. After the carrying platform 13 moves a distance, the second ribs 112 are moved to positions corresponding to the bumps 131, and the first ribs 111 and the bumps 121 are not contacted, and the propping platform 12 and the carrying platform 13 move downward, so that the propping platform 12 drives the carrying platform 13 to move repeatedly in a vertical direction by the rotation of the driving platform 11. When the efficiency enhancing device 1 for replaceable cosmetic skincare pads is used, the carrying platform 13 leans at the user's skin to enhance the absorption effect and skin activation, so as to improve the blood circulation of the skin and promote the metabolism of the skin. In addition, the present invention further provides a very convenient replacement, and users simply remove the skincare pad 2 from the carrying platform 13 and put another skincare pad 2 onto the carrying platform 13 and fix the replaced skincare pad 2 through the adhesion portion 131 to continue the use of the efficiency enhancing device 1 and promote the metabolism of skin without requiring a complicated installation or replacement procedure. Therefore, the present invention can improve the maintenance effect of the skincare pad 2 and also can improve the convenience of use.
- [0029] The present invention further comprises a plurality of elastic elements 14 installed on a side of the propping platform 12, such that the tenacity of the elastic elements 14 produces a reaction force exerted onto the propping platform 12 when the propping platform 12 moves upward, and thus the moving distance of the propping platform 12 can be limited. Wherein, each elastic element 14 is an elastic plate or a spring. In this preferred embodiment, each elastic element 14 is an elastic plate having a through hole 141 formed thereon for providing a uniform stress condition to prevent the elastic element 14 from being broken by a force, but the present invention is not limited to such arrangement.
- [0030] In addition, the propping platform has a connecting shaft 15 installed on a side of the propping platform 12 and corresponding to the carrying platform 13, and the top end of the connecting shaft 15 has at least one support plate 151 for connecting the carrying platform 13 and the propping platform 12. In this preferred embodiment, there are two support plates 151 arranged diagonally opposite to each other, but the present invention is not limited to such arrangement.
- [0031] In addition, the skincare pad 2 has a plurality of protrusions 20 on a surface of the skincare pad 2, and each of the protrusions 20 is in a sharp cone shape and has a height between 100 μm to 150 μm. When use, the protrusions 20 pierce into the user's dermal layer through the pores of the user's skin. By piercing the user's skin repeatedly by the protrusions 20 of the efficiency enhancing device 1 for

replaceable cosmetic skincare pads, the effect of promoting the effect of absorbing various different maintenance solutions or maintenance products contained in the skincare pad **2** into the user's skin can be achieved. Besides allowing the maintenance solutions or products contained in the skincare pad **2** can be permeated deeply into the user's skin or the piecing movement of the protrusions **20** can activate cells to achieve the effects of promoting the blood circulation of skin and the metabolism of the skin. It is noteworthy to point out that the protrusions **20** are made of a matter selected from the collection of polyanhydride (PAH), polylactic acid (PLA), polyglycolic acid (PGA), polylactic-co-glycolic acid (PLGA) and a combination of the above, so that the protrusions **20** can be dissolved into the user's skin directly to keep the maintenance solutions and products remain at the dermal layer of the skin in order to improve the maintenance effect.

[0032] To protect the propping platform **12**, the carrying platform **13** and the elastic elements **14**, the present invention further comprises a housing **16** covered onto an external side of the carrying platform **13** to prevent components including the propping platform **12**, the carrying platform **13** and the elastic elements **14** from being contaminated or prevent their operation from being interfered by the outside.

[0033] With reference to FIGS. **5**, **6** and **7** for an exploded view of an efficiency enhancing device, a schematic view of an application of the efficiency enhancing device, and a schematic view of an application of a skincare pad in accordance with the second preferred embodiment of the present invention respectively, the portion identical to that of the first preferred embodiment will not be repeated, and only the difference between the first and second preferred embodiment is described below. In the second preferred embodiment, the carrying platform **33** is made of acrylonitrile butadiene styrene (ABS) and integrally formed with the skincare pad **4**. When replacing the skincare pad **4**, the user simply remove the skincare pad **4** together with the carrying platform **33** and replaces a new carrying platform **33** for a continual use, so as to provide tremendous convenience to the users. In this preferred embodiment, each protrusion **40** of the skincare pad **4** has a notch **401** formed at a top end of the protrusion **40** for receiving maintenance solutions or products. The protrusions **40** are driven by the carrying platform **33** to pierce into the user's skin, so that the maintenance solutions and products contained in the skincare pad **40** can be absorbed by the user's skin successfully. In addition, the repeated piercing movements can achieve the effects of improving the blood circulation and promote the metabolism of the user's skin.

[0034] Further, the housing **36** contains a first electric contact **361**, a second electric contact **305** disposed in the main body **30** and corresponding to the first electric contact **321**, and the second electric contact **305** is electrically coupled to the control circuit board **304**. After the housing **36** is rotatably assembled with the main body **30**, the first electric contact **361** is electrically conducted with the second electric contact **305** to start the motor **303**. Wherein, the motor **303** of this preferred embodiment is a vibration motor, such that after the housing **36** and the main body **30** are assembled and electrically conducted, the motor **303** is started to drive the driving platform **31** to produce vibrations and drive the propping platform **33** and the carrying platform **33** to move in different direction, so as to achieve the effects of activating the user's skin and improving the effect of absorbing the maintenance solutions by the user's skin more quickly and effectively.

[0035] In the efficiency enhancing device for replaceable cosmetic skincare pads of the present invention, the first ribs disposed on the driving platform and the bumps on the propping platform are used to move the carrying platform that carries the skincare pad in order to achieve the effects of activating cells, promoting blood circulation and metabolism of the user's skin as well as promoting the absorption effect of the skincare pad containing the maintenance solutions. In addition, the skincare pad is fixed onto the carrying platform or the carrying platform by gluing and manufactured as one piece to provide convenient replacements. The present invention can change the user's habit of using the skincare pad and also changes the mode and type of the skincare pad. Unlike the traditional facial masks being deposited onto a user's facial skin, the present invention reduces the volume of the skincare pad or facial mask to fit the use of the efficiency enhancing device for replaceable cosmetic skincare pads, and thus making the use, carry or replacement more convenient.

What is claimed is:

1. An efficiency enhancing device for replaceable cosmetic skincare pads, for installing a skincare pad, comprising:

- a main body, having an opening formed at an end of the main body and a containing space defined in the main body, and the containing space containing a motor and a control circuit board, and the motor being electrically coupled to the control circuit board;
- a driving platform, coupled to the opening, and electrically coupled to the motor, and having a plurality of first ribs disposed on a surface of the driving platform;
- a propping platform, disposed at a position corresponding to the driving platform, and having a plurality of bumps disposed on a side of the propping platforms and corresponding to the first ribs respectively, and the driving platform being driven by the motor to link the propping platform to displace up and down; and
- a carrying platform, for carrying the skincare pad, and after the top end of the propping platform, the propping platform and the main body are assembled, the propping platform is displaced up and down and drive the carrying platform to move repeatedly in a vertical direction, so as to improve the absorption effect of the skincare pad and achieve a skin activation effect.

2. The efficiency enhancing device for replaceable cosmetic skincare pads according to claim **1**, wherein the propping platform has a connecting shaft installed on a side of the propping platform and corresponding to the carrying platform, and the connecting shaft has at least one support plate installed at the top end of the connecting shaft and provided for installing and supporting the carrying platform.

3. The efficiency enhancing device for replaceable cosmetic skincare pads according to claim **1**, further comprising a plurality of elastic elements installed on a side of the propping platform, such that the tenacity of the elastic elements produces a reaction force acted onto the propping platform when the propping platform moves upward.

4. The efficiency enhancing device for replaceable cosmetic skincare pads according to claim **3**, further comprising a housing covered onto an external side of the carrying platform for protecting the carrying platform, the propping platform and the elastic elements.

5. The efficiency enhancing device for replaceable cosmetic skincare pads according to claim **4**, wherein the housing includes a first electric contact disposed therein, and the main body has a second electric contact corresponding to the

first electric contact, and the second electric contact is electrically coupled to the control circuit board, such that after the housing is assembled with the main body, the first electric contact is connected to the second electric contact to start the motor.

6. The efficiency enhancing device for replaceable cosmetic skincare pads according to claim 1, wherein the main body has a plurality of press buttons electrically coupled to the control circuit board for controlling a start status of the motor.

7. The efficiency enhancing device for replaceable cosmetic skincare pads according to claim 1, wherein the skincare pad has a plurality of protrusions formed on a surface of the skincare pad, and each protrusion is in a sharp cone shape.

8. The efficiency enhancing device for replaceable cosmetic skincare pads according to claim 7, wherein the protrusions are made of a matter selected from the collection of polyanhydride (PAH), polylactic acid (PLA), polyglycolic acid (PGA), poly(lactic-co-glycolic acid) (PLGA) and a combination thereof.

9. The efficiency enhancing device for replaceable cosmetic skincare pads according to claim 1, wherein the carry-

ing platform is made of acrylonitrile butadiene styrene (ABS) and integrally formed with the skincare pad.

10. The efficiency enhancing device for replaceable cosmetic skincare pads according to claim 1, wherein the motor is a rotary motor, and after the motor is started to rotate the driving platform, and the first ribs have a recessed space formed between the bumps, the propping platform is situated at a downward movement status, after the driving platform is rotated to move a distance, and the first ribs are contacted with the bumps, the propping platform moves upward by a propping action to drive the carrying platform to move quickly in a vertical direction.

11. The efficiency enhancing device for replaceable cosmetic skincare pads according to claim 1, wherein the motor is a vibration motor provided for vibrating the driving platform and driving the propping platform and the carrying platform to vibrate the carrying platform at a high speed.

12. The efficiency enhancing device for replaceable cosmetic skincare pads according to claim 1, wherein each elastic element is an elastic plate, and the elastic element has a through hole formed thereon for preventing the elastic element from being broken by a force.

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