

COSMETIC ROLLER

TECHNICAL FIELD

[0001] The present invention relates to a cosmetic roller that is rolled on a skin surface to perform beauty treatment, and particularly relates to a cosmetic roller having a feature in the rolling mechanism of a roller portion.

BACKGROUND ART

[0002] Conventionally, various cosmetic rollers have been known. A user makes a freely rotatable roller portion contact with a skin surface to perform beauty treatment for her/his face, arms, legs, etc., while holding a cosmetic roller main body with her/his hand. For example, with respect to a cosmetic roller disclosed in Patent Document 1, a handle portion gripped by a user is divided into two forks, and there is attached a roller portion, which contacts with a face or a body, to each end of the forks. The roller portion has a slender spherical shape and a triangular-lattice-like pattern formed on the surface thereof. The roller portion is a spherical body, the cross section of which has an elliptical shape, and a rotational shaft is provided along a line that passes the center of the cross section.

[0003] A cosmetic device disclosed in Patent Document 2 comprises a handle and a roller rotatably supported by the handle. Electrically conductive portions are provided on the surface of the outer periphery of the handle and on the surface of the outer periphery of the roller, and electrical insulation is performed between those electrically conductive portions. Inside the roller, there are provided a permanent magnet as a power generation section that generates electricity with the rotation of the roller and a supply section that supplies generated power between the electrically conductive portions. A cosmetic device disclosed in Patent Document 3 has a similar shape.

[0004] A massaging tool disclosed in Patent Document 4 has a configuration where the leading end of a handle portion is provided with a spherical roller, on the surface of which a plurality of hemispherical projections are provided. The roller is supported by a rotational shaft that passes the center of the spherical body.

5 [0005] On the other hand, in a massaging device that has been conventionally known, it is common knowledge that there exists a configuration where a roller is vibrated in order to improve a massaging effect. For example, with respect to a roller built in a massaging chair, it is common that a rotational shaft is made eccentric relative to the center of the roller and that a vibration is driven by a motor.

10 [0006] Moreover, a roller massaging device disclosed in Patent document 5 is shaped such that a user grips a main body, and has a built-in vibration device in which an eccentric weight is fixed to the driving shaft of a motor. Also in a cosmetic tool disclosed in Patent Document 6, a vibration generating device is built in a roller. As a roller is contacted with a neck and is moved along the neck so that the skin of the neck may be smoothed out,
15 it is designed such that a vibration generated by the vibration generating device acts on the neck with the roller being rotated and moved.

CITATION LIST

PATENT LITERATURE

- 20 [0007] Patent Document 1: Japanese Design Registration No. 1427467
Patent Document 2: JP 2011-15874 A
Patent Document 3: Japanese Design Registration No. 1387971
Patent Document 4: Japanese Design Registration No. 1374521
Patent Document 5: JP 2011-229753 A
25 Patent Document 6: JP H5-84328 Y

SUMMARY OF INVENTION

TECHNICAL PROBLEM

[0008] As in each of these Patent Documents, it is publicly known that there exists a configuration where a vibration is imparted in a massaging device gripped by a user, which is provided with a vibrating device and which is rotary-driven by a motor etc. However, a device becomes complicated when it has a motor and a vibrating device built-in, and there is a problem that a power source is needed to generate a vibration, for example.

[0009] The present invention was created in consideration of the problems which the above mentioned conventional technologies have; an object of the present invention is to provide a technology that is aimed at improving a massaging effect by imparting an appropriate vibration to a skin surface and by adjusting the contact angle of a roller portion, in a cosmetic roller which a user grips with her/his hand to roll the roller portion on the skin surface.

SOLUTION TO PROBLEM

[0010] In order to solve the above-mentioned problems, the present invention provides a cosmetic roller as follows. That is, a cosmetic roller, by which beauty treatment is performed by contacting and rotating a roller body against a skin surface, comprises: a substantially rod-shaped main body portion which is provided with shaft supporting portions, near the end portions thereof, for pivotally supporting the rotational shafts of two roller bodies, the main body portion being formed so that an outer periphery in a longitudinal direction can be gripped; the two rotational shafts of the roller bodies which project in different directions with a predetermined opening angle from the longitudinal direction of the main body portion; the two roller bodies which are freely rotatable about the rotational shafts respectively, wherein a center position in a cross section perpendicular to an axial direction of the rotational shaft and the position of the rotational shaft are

arranged eccentrically relative to each other at least partially.

[0011] In the cosmetic roller mentioned above, it may be configured such that the rotational shaft and the central axis of the roller body are arranged inclinedly relative to each other.

5 [0012] It may be configured such that the rotational shafts of the cosmetic roller are provided with an angular variation mechanism which can vary an opening angle from the longitudinal direction of the main body portion in a predetermined range and such that the angular variation mechanism is provided with energizing means which performs energization so that closing may be done in the longitudinal direction.

10 [0013] In the roller body of the cosmetic roller mentioned above, it may be configured such that pleat-like uneven faces substantially parallel to the rotational shaft are formed on the surface of the outer periphery thereof. Moreover, it may be configured such that the roller body has the shape of the cross section where a plurality of rounded corners are equally arranged on the outer periphery thereof.

15 [0014] It may be configured such that the two roller bodies of the cosmetic roller mentioned above have respective electrodes and such that electrical conduction is enabled to a skin surface between the electrodes.

ADVANTAGEOUS EFFECT OF INVENTION

20 [0015] With the configuration mentioned above, the present invention takes effect as follows. First, with respect to two roller bodies freely rotatable, since a center position in a cross section perpendicular to the axial direction of the rotational shaft and the position of the rotational shaft are arranged eccentrically relative to each other at least partially, with the roller bodies being rolled on a skin surface, vibrations are conveyed from the
25 roller bodies, contributing to improvement in a cosmetic effect. Since vibrations are

naturally generated with the rollers being rolled as in a conventional way, a driving device such as a vibrating device and a motor is unnecessary, and a power source is also unnecessary.

[0016] When the rotational shaft and the central axis of a roller body mentioned above are arranged inclinedly relative to each other, since twist movement arises in the vibration of the roller body, a more complicated sensation can be imparted to a skin surface. For example, by rolling a roller with eccentricity on the skin surface, twist movement acts on the skin surface, producing a sensation different from one obtained by an ordinary vibration, such as a sensation that the skin is pulled up as if it was raised.

[0017] Since the rotational shafts of the cosmetic roller are provided with an angular variation mechanism which can vary an opening angle from the longitudinal direction of the main body portion in a predetermined range and since the angular variation mechanism is provided with energizing means which performs energization so that closing may be done in the longitudinal direction, the opening angle of the roller bodies can be varied according to a region which the roller bodies contact with. For example, for a slender region such as an arm, the roller bodies contact with the region with the opening angle being in a closed state; for a region such as a belly and a thigh, the roller bodies are able to contact with the region over a wide range with the opening angle being opened.

[0018] In the roller body of the present invention, since pleat-like uneven faces substantially parallel to the rotational shaft are formed on the surface of the outer periphery thereof, a slight and quick vibration is imparted to a skin surface by the uneven face during rotation; in addition, with the vibration of the rotational shaft, there arises a change in the strength of a force with which the roller body contacts with the skin surface; thereby, a bodily sensation can be complemented. In particular, when the roller body has the shape of a cross section where a plurality of rounded corners are equally arranged on the outer

periphery thereof, a good stimulus to the skin surface can be realized.

[0019] With the roller having electrodes and with electrical conduction enabled to the skin surface, electrical muscle stimulation is performed, which can further improve a cosmetic effect.

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BRIEF DESCRIPTION OF DRAWINGS

[0020] FIG.1 is a perspective view of a cosmetic roller according to the present invention;

FIG. 2 is an explanatory view of the opening/closing mechanism of roller bodies;

FIG. 3 is an explanatory view showing the opening/closing mode of the roller

10 bodies;

FIG. 4 is a cross section showing the rotational shaft portion of a roller body; and

FIG. 5 is an explanatory view showing the shape of another example of a roller body.

DESCRIPTION OF EMBODIMENTS

15 [0021] Embodiments of the present invention will be described below based on examples shown in the drawings. The embodiments are not limited to those described below.

FIG.1 is a perspective view of a cosmetic roller (1) according to the present invention.

The cosmetic roller (1) comprises shaft supporting portions (11), (12) which pivotally support the rotational shafts of two roller bodies (20), (21) respectively, near the end of a

20 substantially rod-shaped main body portion (10). A user grips the outer periphery of the main body portion (10) and rolls roller bodies (20), (21) while contacting the roller bodies (20), (21) against her/his face, arms, legs, etc.

[0022] On the roller bodies (20), (21), as illustrated in FIG. 1, there are formed pleat-like uneven faces (200), (201) parallel to the direction of the rotational shafts; with the roller

25 bodies (20), (21) rolled on a skin surface, beauty treatment is performed by the sense of

heat and the sense of touch of a metallic material, by vibrations due to the uneven faces (200), (201) and also by pressures at which the roller bodies (20), (21) are contacted with the skin surface. As is publicly known, beauty treatment to a skin surface may be performed with a semiconductor chip placed on the roller bodies (20), (21).

5 [0023] FIG. 2 shows an explanatory view of the opening/closing mechanism of the roller bodies. The two roller bodies (20), (21) are pivotally supported by the respective mechanisms of the shaft supporting portions (11), (12) arranged on the side of the main body portion (10). In a conventional cosmetic roller, the rotational shaft of a roller body has been fixed, and it has been configured such that the roller body and a main body
10 portion are freely rotatable in a relative manner.

[0024] On the other hand, in the present invention, the rotational shafts (110), (120) are not fixedly installed on the main body portion (10); opening/closing pivotally supporting pins (111), (121) are arranged on the root portions inside the main body portion (10) and the opening/closing pivotally supporting pins (111), (121) pivotally support the shaft fixing
15 portions (112), (122) of the rotational shafts, respectively. Thereby, the rotational shafts (110), (120) of the cosmetic roller realize an angular variation mechanism that can vary an opening angle from the longitudinal direction of the main body portion (10) in a predetermined range.

[0025] Furthermore, as shown in FIG. 2(b), this angular variation mechanism is provided
20 with torsion springs (113), (123) as energizing means that performs energization so that a closing may be done in a longitudinal direction (D1). One Ends (113a), (123a) of torsion springs are connected with the rotational shafts (110), (120) respectively, and the other ends of torsion springs are connected with the main body portion (10); in the figure, connecting portions connecting to the rotational shafts are opened outside relative to the
25 longitudinal direction; that is, the roller bodies (20), (21) are energized so that the closing

direction (D2) may become perpendicular relative to the longitudinal direction.

[0026] FIG. 3 is an explanatory view showing the opening/closing mode of the roller bodies. In this example, a natural state is a state where an angle between the respective roller bodies (20), (21) is about 60 degrees, which is stabilized as a closed state due to the action of the torsion springs (113), (123).

[0027] When a user roll the roller bodies (20), (21) with her neck or her thigh held therebetween, the roller bodies (20), (21) are opened due to a pressure acting thereon, which resists the acting force of the torsion springs (113), (123). By adjusting the strength of the torsion springs (113), (123) properly, a constant pressure can be applied to a skin surface. In this example, a most opened state is a state where the angle between the respective roller bodies (20), (21) is about 110 degrees. Although this angle can be changed arbitrarily, it is preferred that an opening/closing angle in the angular variation mechanism is generally in a range between 45 degrees and 135 degrees.

[0028] Next, descriptions will be made on a configuration where the rotational shaft of the roller body is made eccentric, as a feature of the present invention. FIG. 4 is a cross section showing the rotational shaft portion of the roller body. As mentioned above, the rotational shaft (110) projecting from the shaft fixing portion (112) of the main body portion (10) is inserted into the roller body (20), and the roller body (20) is freely rotatable via a bearing (201).

[0029] At this time, the axial direction (L1) of the rotational shaft (110) is not arranged in accordance with the central axis of the roller body (20), but is inclined relative to the axial direction (L2) of the central axis. Usually, with the rotational shaft being in accordance with a central axis, the outer periphery of the roller body (20) is to rotate at a constant position during rotation. Also in a conventional cosmetic roller, a rotational shaft is in accordance with a central axis, and a stimulus is to be imparted to a skin surface by the

uneven surface of a roller body.

[0030] In the present invention, since the rotational shaft is inclined relative to the central axis, when the roller body is rolled on a skin surface, twist movement arises in the roller body (20); since a change occurs every moment in the portion of the surface of the outer periphery where the roller body contacts with the skin surface, there can be imparted touch to a user, which is completely alien from the touch of the monotonous rolling of a roller body. The configuration of the present invention does not employ a vibrating device, a driving device, etc.; since the roller bodies vibrate naturally and irregularly with being rolled by a user, this configuration also contributes to the ease of handling and weight saving for a cosmetic roller.

[0031] As mentioned above, since the outer periphery of the roller body (20) is provided with the pleat-like uneven faces (200), (201) parallel to the rotational shaft, slight and quick vibrations corresponding to the number of pleats are imparted to a skin surface during one rotation of the roller body (20), and also one large twist can be imparted during one rotation. In a cosmetic roller, imparting a stimulus to a skin surface is an extremely important function; in the present invention, there is shown a distinctive action which has not been realized in a conventional cosmetic roller. For example, large twist produces an effect as if the skin was raised, which can improve a massaging effect for the skin and the muscle of a body portion where slack is minded.

[0032] Although this example shows a configuration where the axial direction of the rotational shaft is inclined relative to the central axis of the roller body, the present invention can take effect by arranging a central position in a cross section perpendicular to the axial direction of the rotational shaft and the position of the rotational shaft eccentrically relative to each other at least partially. For example, it may be configured such that the axial direction of the rotational shaft and the central axis are parallel to each

other with their position being made eccentric.

[0033] FIG. 5 is an explanatory view showing the shape of another example of a roller body. As in a cross sectional view along line A-A shown in FIG. 5(b), the another example is provided with a triangular-shaped roller body (20') with rounded corners (20a),
5 (20b), (20c).

[0034] Also in this another example, the rotational shaft (110) passes through a position eccentric relative to the center of the cross section (the center of gravity); as a result, an action becomes complicated. That is, when the roller body is rolled on a skin surface, since the respective corners (20a), (20b), (20c) press the skin surface stronger, there arise
10 three stimuli; in addition, there are combined two stimuli which are caused by the periphery of the corner (20c), where a distance from the rotational shaft (110) to the outer periphery is short, and by the peripheries of corners (20a), (20b), where a distance from the rotational shaft (110) to the outer periphery is long.

[0035] Furthermore, by combining the above stimuli with the angular variation
15 mechanism that varies the opening angle of the roller body in the present invention, there can be realized an even more complicated massaging effect. Due to the eccentric movement of the roller body with the torsion spring (113) exerting an elastic force over a skin surface, there can be imparted touch completely different from one in a conventional cosmetic roller, during rolling.

[0036] The shape of the roller body is not limited to the triangular shape with rounded corners mentioned above, but there can be employed an arbitrary polygonal shape with rounded corners, which is extended to an octagonal shape with rounded corners. Moreover, it may be configured such that a roller body is substantially cylindrical shaped with the central axis and the rotational shaft thereof inclined relative to each other.

[0037] Although descriptions were made, in the example mentioned above, on a simple
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configuration where a power source is not used, it may be configured as follows: electrical conduction is performed to the skin and the muscle with two rollers used as electrodes; thereby, there is included an EMS function by which electrical muscle stimulation (EMS) is performed. That is, the main body portion (10) has a power source such as a battery or the supply circuit of a power source, and the control circuit of EMS built-in, which are
5 connected with two roller body made of metal. And then, for example, it is configured such that the EMS function can be turned on or turned off by a switch annexed to the main body portion (10).

[0038] According to the present invention, since two roller bodies change the opening
10 angle thereof according to the shape of a skin surface and roll on the skin surface while imparting vibrations, there can be obtained the massaging effect of EMS as well as stimuli by the roller bodies. Furthermore, it may be configured such that the timing of imparting an electric stimulus is created according to the rotation angle of the roller bodies. For example, if there is provided an electrode, which is on the way of a line connecting to the
15 main body portion, on a portion of the outer periphery of the rotational shaft (110), and if electric conduction is performed according to the rotation angle of the rotational shaft, the rotation of the roller body can be synchronized with generating the stimulus of EMS.

[0039] Although the entire of the roller body is used as an electrode in this configuration, it may be configured such that there is provided an electrode on a portion of the roller body.
20 For example, it may be configured such that an electrode is formed only on the end portion or the side portion of the roller body. Electrical conduction from the electrode may be performed with either a low frequency current or a high frequency current. In addition, there can be properly included the function of a publicly known cosmetic device.

REFERENCE SIGN LIST

[0040]	1	Cosmetic roller
	10	Main body portion
	11	Shaft supporting portion
5	110	Rotational shaft
	111	Opening/closing pivotally supporting pin
	112	Shaft fixing portion
	113	Torsion spring
10	12	Shaft supporting portion
	120	Rotational shaft
	121	Opening/closing pivotally supporting pin
	122	Shaft fixing portion
	123	Torsion spring
15	20	Roller body
	21	Roller body

CLAIMS

1. A cosmetic roller, by which beauty treatment is performed by contacting and rotating a roller body against a skin surface, comprising:

a substantially rod-shaped main body portion which is provided with shaft supporting portions, near the end portions thereof, for pivotally supporting rotational shafts of two roller bodies, the main body portion being formed so that an outer periphery in a longitudinal direction can be gripped;

two rotational shafts of the roller bodies which project in different directions with a predetermined opening angle from the longitudinal direction of the main body portion;

two roller bodies which are freely rotatable about the rotational shafts respectively, wherein

a center position in a cross section perpendicular to an axial direction of the rotational shaft and a position of the rotational shaft are arranged eccentrically relative to each other at least partially.

2. The cosmetic roller according to claim 1, wherein

the rotational shaft and a central axis of the roller body are arranged inclinedly relative to each other.

3. The cosmetic roller according to claim 1 or 2, wherein

the rotational shafts of the cosmetic roller are provided with an angular variation mechanism which can vary an opening angle from the longitudinal direction of the main body portion in a predetermined range, and the angular variation mechanism is provided with energizing means which performs energization so that closing may be done in the longitudinal direction.

4. The cosmetic roller according to any one of claim 1 to 3, wherein
in the roller body of the cosmetic roller, pleat-like uneven faces substantially
parallel to the rotational shaft are formed on a surface of an outer periphery thereof.

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5. The cosmetic roller according to any one of claim 1 to 4, wherein
the roller body of the cosmetic roller has a shape of the cross section where a
plurality of rounded corners are equally arranged on the outer periphery thereof.

- 10 6. The cosmetic roller according to any one of claim 1 to 5, wherein
the two roller bodies of the cosmetic roller have respective electrodes and
electrical conduction is enabled to a skin surface between the electrodes.