

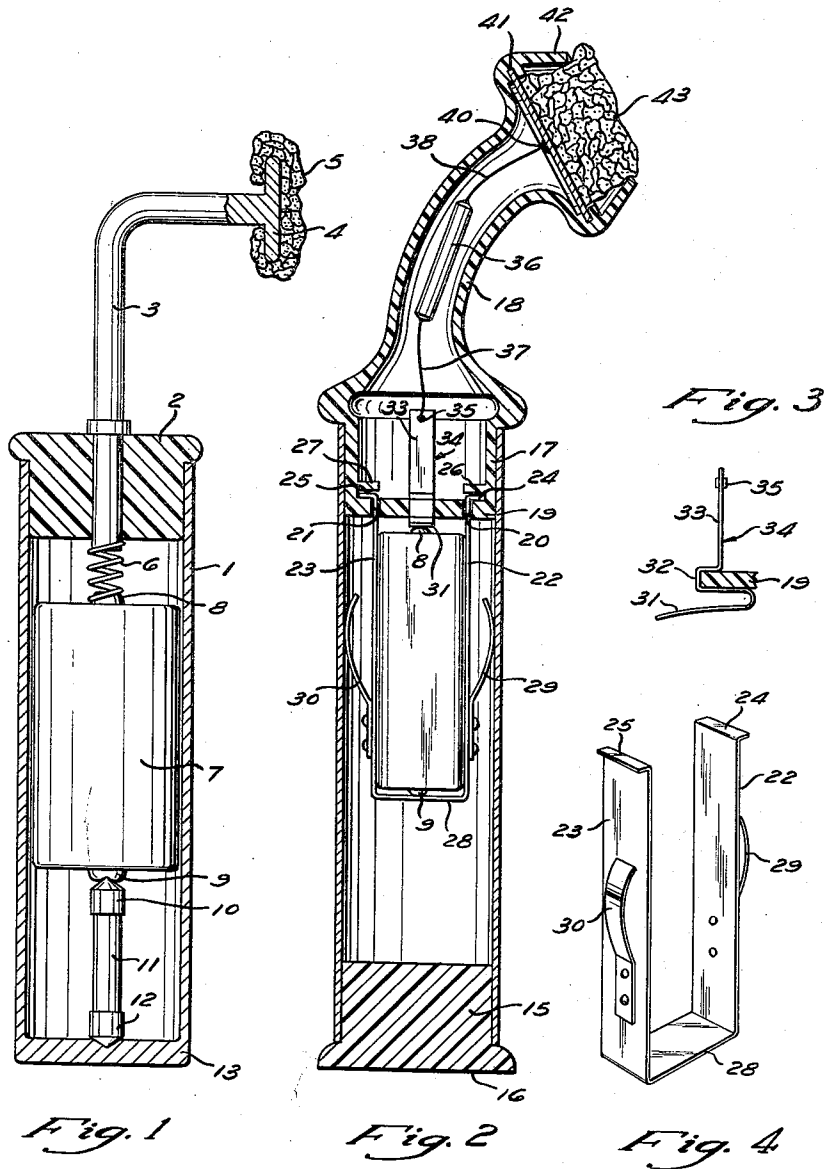
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ELECTRICAL APPARATUS FOR COSMETIC TREATMENT OF THE SKIN

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ELECTRICAL APPARATUS FOR COSMETIC TREATMENT OF THE SKIN

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This invention relates to devices for electrical therapy for the human body having desirable cosmetic effects.

It is among the objects of my invention to provide a convenient instrument which may be held in the hand of the user and which includes an applicator head arranged to be brought into contact with the face and neck of the user.

It is a further object of my invention to provide an instrument according to the preceding object wherein a hollow metal handle is connected to one terminal of a battery carried within the handle and wherein the other terminal of the battery is connected to the applicator through a resistor whereby the resistor reduces the current flow to the applicator and such current is maintained well within safe limits for therapeutic application.

Further objects and advantages relating to low cost manufacture, safety in operation and efficiency will appear from the following description and the appended drawings wherein:

FIG. 1 is an elevation with parts in section showing one form of my invention;

FIG. 2 is an elevation with parts in section showing a preferred form of the device;

FIG. 3 is an elevation showing a spring contact mounted within the instrument and the conductor leading therefrom to the applicator; and

FIG. 4 is a perspective view of the battery holder forming a part of my invention.

Referring to the drawings and the form of invention illustrated in FIG. 1, a metallic cup-like case 1 is provided with a non-metallic closure member 2. The closure member is provided with an axial bore to receive a metal rod 3 which is bent at its upper end laterally and connected to a metal applicator head 4. The applicator includes a covering 5 of sponge-like material such as foam plastic or foam rubber.

Within the hollow case 1 a battery 7 is supported which battery is provided with an upper terminal 8 and a lower terminal 9. The terminal 8 is electrically connected by a spring wire element 6 to the lower end of the rod 3 of the applicator. The lower terminal 9 of the battery is connected as at 10 to a resistor 11 and the lower end of the resistor 11 is connected as at 12 to the metal base 13.

The battery 7 is preferably of the dry cell type and is constructed to provide voltages in the range of six to thirty volts. The resistor 11 is selected in accordance with voltage of the battery and the resistors will be in the range of six thousand to thirty thousand ohms. For example, with a six volt battery 7, the resistor 11 will be one characterized by a rating of six thousand ohms, whereas when a battery 7 provides thirty volts, the resistor should have a rating of thirty thousand ohms. Accordingly it is preferred that the ratio of voltage to resistor ohms be in the nature of one to one thousand.

In connection with the use of the device of FIG. 1 the sponge 5 should be moistened with water so as to improve the electrical contact between the applicator head and the surface of the body which is brought into contact with the head. The casing 1, which is held in the hand of the user, thus completes the electrical circuit; that is, from terminal 9 of the battery thence through the hand and body of the person using the instrument and back through the applicator 5 to the terminal 8. The resistor 11 is effective to reduce the current flow to an amount

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which has been found to be safe and effective for cosmetic purposes. The exact physiological effects are not well known but it is believed that the low current flow from the applicator head 5 to the face of the user stimulates the rapid contraction of the muscles beneath the skin and that such muscle action stimulates circulation in the areas treated.

In the form of the invention illustrated in FIG. 2 a cylindrical metal casing 14 is employed which is provided with a lower non-metallic closure member 15 and an upper non-metallic closure member 18. The closure member 18 is generally hollow throughout and is provided with a shelf or ledge 19 across the lower end of the member 18. In this form of the invention the battery having terminals 8 and 9 is mounted in a hanger element as shown in FIG. 4 and the hanger element is detachably mounted on the shelf 19 at the lower end of the member 18.

The battery hanger includes spaced parallel side walls 22 and 23 connected by a bottom member 28. The hanger element is made of metal and includes spaced spring contacts 29 and 30 which bear against the wall of the metal casing 14. In this way the battery terminal 9 is connected to the metallic casing 14. The upper ends of the battery hanger members 22 and 23 are turned outwardly as at 24 and 25 so that said members 24-25 may be detachably connected to the shelf 19 of the member 18. The interior of the lower end of the member 18 is provided with overhanging ledges 26 and 27 and the portion 19 is slotted as at 20 and 21 so that when the member 18 is removed from the casing 14, the member 22 and its flange 24 may be passed through the slot 20 and restrained against longitudinal movement in the slot by the member 26. Similarly the member 23 is passed into the slot 21 and the portion 25 is restrained against movement by the member 27.

A flat metallic contact member 34 is bent in a U-shape intermediate its length so as to provide for a frictional grip of the member 34. The U-shape is indicated at 32 in FIG. 3 so that the upper portion 33 may be connected as at 35 to a wire leading to the applicator. The lower portion of the member 34 is bent laterally as at 31 and provides a firm contact with the upper battery terminal 8. A wire 37 leads from the upper end of the member 34 to a resistor 36 and the resistor 36 is, in turn, connected by wire 38 to a flat metal disc 39 as at 40. The uppermost portion of the member 18 is bent laterally and is enlarged so as to provide a circular pocket bounded by the flange portion 42. The member 18 is molded of a non-metallic plastic material and during the molding an annular groove 41 is provided to receive the periphery of the metal disc 39.

The flanges 42, being bent inwardly, form a re-entrant pocket to hold the sponge material 43. In this form of the invention the lower closure 15 for the case 14 is provided with a metal plate 16 so as to ground the instrument when placed upon a conducting surface.

In the form of the invention of FIG. 2 the applicator 43 is moistened and the tubular casing 14 is gripped by the user and the device is employed substantially as described in connection with the embodiment of FIG. 1.

In the form of the invention of FIG. 1 the resistor is in that side of the circuit leading from battery terminal 9 to the metal casing 1, whereas in the form of FIG. 2 the resistor is in that side of the circuit leading from the battery terminal 8 to the applicator disc 39. It will be understood by those skilled in the art that the resistor may be in either side of the circuit without changing the mode of operation of the device.

It will also be understood that part of the resistance may be in one side of the circuit and the other part of the resistance in the other side of the circuit as long as

the total resistance bears the relationship to the battery as above set out.

The insulating part (17, 18, 42) and the active electrode (39) within the range of the present invention can also be of different shape, e.g. they may have the shape of a cylinder forming an extension of the handle. The active electrode together with the absorbent coating can, for instance, be made in the shape of a hemisphere or in oval shape.

In order to adapt the applied voltage and the current to the sensibility of the skin on the spot where treatment is to be carried out, the apparatus may be provided with switching elements for the voltage or the current or for both.

Although I have shown and described two forms of my invention in considerable detail, it will be appreciated by those skilled in the art that numerous modifications may be made therein without departing from the scope of the invention as defined in the following claim.

What is claimed is:

An instrument for direct current electrical cosmetic treatment comprising a hollow metallic casing having one open end, a non-metallic member for closing said one open end, a metal applicator member carried by said non-

metallic closure, a battery within said casing, means to connect one terminal of said battery directly to the metal casing only and the other terminal of said battery directly to said metallic applicator member only, said connecting means including fixed resistance means to reduce the direct current flow between the battery and the applicator member, said battery having a voltage in the range of six to thirty volts and said resistance means having a resistance of six thousand to thirty thousand ohms, and a conductive sponge member mounted on said metal applicator member whereby the direct current circuit between the battery and the body of the user is completed through said metallic casing and said sponge.

References Cited in the file of this patent

UNITED STATES PATENTS

1,289,864	Modern	Dec. 31, 1918
1,532,463	Winterfield	Apr. 7, 1925
1,655,554	Lev	Jan. 10, 1928
2,447,127	Landauer	Aug. 17, 1948

FOREIGN PATENTS

236,256	Germany	July 1, 1911
614,552	Great Britain	Dec. 17, 1948