HAIR TREATMENT ARRANGEMENT

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Abstract

A hair treatment arrangement has a first pad (100) configured to be supported on a first digit of a user's hand so as to be exclusively moveable therewith; and a second pad (100) configured to be supported on a second digit of the user's hand so as to be exclusively moveable therewith.
HAIR TREATMENT ARRANGEMENT

[0001] The present invention relates to a hair treatment arrangement and more specifically, to a highly portable, finger manipulable hair treatment device.

DESCRIPTION OF THE RELATED ART

[0002] Various portable heated hair treatment arrangements have been proposed. However, these arrangements inevitably include manually operable scissors, tongs or clamp arrangements which enable heating pads or the like to be forced into contact with hair which is being styled or straightened, and thereby held in contact with the hair as the heating pads or elements are slid over the hair in a manner which produces the desired effect.

[0003] These manually operable arrangements, however, increase the size, bulk and weight of the arrangements and therefore reduce their portability. In addition, these arrangements lack optimal maneuverability.

[0004] The invention is directed to providing a highly portable arrangement which enables highly dexterous heat treatment of hair.

[0005] More specifically, a first aspect of the invention resides in a hair treatment arrangement comprising: a first pad configured to be supported on a first digit of a user's hand so as to be exclusively movable therewith; and a second pad configured to be supported on a second digit of the user's hand so as to be exclusively movable therewith. This separate disposition on separate digits permits highly dexterous maneuvering of the pads.

[0006] This aspect further comprises a housing operatively connected with each of the first and second pads through flexible leads and configured to selectively supply electrical current to heating elements in the first and second pads. By way of example the first and second digits of the hand are the thumb and index finger.

[0007] To improve the utility of the arrangement, the housing is configured to be supported in a palm of the user's hand. In at least one embodiment of the invention the housing is a pod-shaped housing. The housing can be supported on the wrist or the back of the hand using a support strap.

[0008] The first and second pads further comprise ring members through which the first and second digits of the hand can be inserted. In at least one embodiment of the invention, the ring members are detachably connected to the first and second pads.

[0009] The housing contains a self-contained source of EMF (electromotive force). This can be a battery or batteries such as two commercially available AA batteries. To control the supply of current from the self-contained source of EMF, the housing is provided with a button operated switch.

[0010] To impart ease of manipulation the first and second pads are connect to each other only by flexible leads which respectively extend from the housing.

[0011] A second aspect of the invention resides in a hair treatment arrangement comprising: separate finger supported pads which are each configured to be supported on a finger or thumb of a hand; and a heating element disposed in at least one of the pads and configured to apply heat as the pads are pressed together and slid over selected strands of hair.

[0012] The pads have ring-shaped members configured to receive the finger or the thumb. These ring-shaped members are, in one embodiment, detachably connected to the pads by a connection arrangement and are configured so that they can be disposed on the finger or the thumb and then connected with the pads to allow a desired disposition/orientation of the pads with respect to the finger or thumb.

[0013] The connection arrangement comprises a hook and eye connection arrangement wherein a first half of the hook and eye arrangement is fastened to a ring and the second half of the hook and eye arrangement is fastened to a pad. The housing is configured to fit in a palm of a users hand and to be gripped by at least one of the ring and little fingers of the hand. The housing is operatively connected with the at least one heating element and further configured to supply electrical current to the at least one heating element. The housing includes a switch which is configured to control the supply of electrical current to the heating elements. In at least one embodiment of the invention this switch is configured to be operated by a button provided on the housing.

[0014] A further aspect of the invention resides in a method of treating hair comprising: supporting separate pads, at least one of which has a heating element disposed therein, on first and second digits of a hand so that the first and second pads are respectively movable with the first and second digits; and selectively supplying electrical current to the at least one heating element while gripping hair between the first and second pads and sliding the first and second pads along the hair. This aspect further includes supporting a housing, which is configured to supply the electrical current to the at least one heating element through at least one flexible lead, in the palm of the hand, or on a support strap on the wrist or the back of the users hand.

[0015] The various advantages and merits of the embodiments of the invention will become more clearly appreciated as a detailed description of the exemplary embodiments are given with reference to the appended drawings in which:

[0016] FIG. 1 is a perspective view of an embodiment of a hair straightening device according to the invention;

[0017] FIG. 2 is a view of the pod-shaped housing which forms part of the embodiment shown in FIG. 1 showing a charge connection which is provided on a rear side of the housing;

[0018] FIG. 3 is a perspective view of a pair of straightening plates or pads which form a part of the embodiments of the invention;

[0019] FIG. 4 is a perspective view of an embodiment of the invention shown in a hand-held operative disposition.

[0020] FIG. 5 is a perspective view of an embodiment of the invention which is configured to have a support strap so that the pod-shaped housing can be supported on the wrist or the back of the hand.

[0021] FIG. 6 is a sectional view of an example of a pad which can be used in the embodiment shown in FIGS. 1 and 2.

[0022] FIG. 1 shows a first embodiment of the invention. In this arrangement, the hair treatment device comprises two finger pads 100, a housing 102 and flexible connection cables 104. In this particular embodiment, the housing 102 is pod-shaped so as to be easily held in the palm of the hand and is provided with an LED or the like type of on/off charging indicator light 102A. This light 102A is formed on the front of the housing. The housing 102 is further formed with an on/off button 102B on the front of the housing 102, and a charge connection 102C on the rear or back side of the housing (see FIG. 2).
Each of the pads 100 can be constructed in a manner such as exemplified in FIG. 6. In this particular arrangement, the finger pads 100 include an upper housing member 106 and a lower housing member 108. As shown, the lower housing member 108 encloses/supports an aluminum heating plate 110, a PTC (positive temperature coefficient) ceramic member 112, and an aluminum back plate 114, which arranged in the illustrated manner. That is to say, arranged so that the PTC ceramic member 112 is sandwiched between heating plate 110 and the back plate 114, and so that the three members can be enclosed in the lower housing member 108 which is formed of a heat resistant, combustion resistant, non-conductive polymeric material such as polycarbonate.

With this arrangement, the heating plate 110, PCT ceramic member 112 and the back plate 114 can be assembled and set in a mold. The lower housing 108 can then formed using a suitable molding technique.

As shown in FIG. 6, parts 110A of the heating plate 110 are arranged to extend out of the lower housing member 108 so to allow for connection with electrically conductive wires (not shown) via which current is supplied to and past through the heating plate 110.

It should be noted, that the invention is not limited to this particular construction and that various other pad constructions fall within the scope of the invention.

The upper member or housing top 106 is formed with a recess 106A in its outer upper surface in which one half 116A of a connector arrangement 116 is fixed. In this embodiment, the connector arrangement 116 takes the form of a hook and eye connector (e.g. Velcro®) is disposed and bonded or staked in position. The upper member 106 is further formed with a lower concavity or recess configured to receive the lower housing member 108 and to be connected thereto by adhesive or the like type of bonding agent 117.

A thumb/finger loop 118 is connected to the second half 116B of the connector arrangement. As shown in FIG. 3, the recess 106A and connector halves 116A, 116B are circular. This allows the thumb/loop members 118 to be slipped onto the desired digits of the user's hand and the pads 100 then connected to the loop 118 via the two halves of the connector 116 in a manner which facilitates a preferred orientation of the pads with respect to the digits (finger/thumb) of the user.

In the embodiments of the invention shown in FIGS. 1 and 3-5, the thumb/finger loops 118 are covered with a soft covering 118A. This covering 118A Improves comfort, prevents slippage and further insulates the user's digits from any warmth that might reach the upper member 106.

Electrical power for the heating plates 110 is provided by a battery pack or the like which is disposed in a housing 102. The battery pack can be arranged to receive commercially available cells (e.g. 2xAA cells) which, in this embodiment, are rechargeable. The button 102B operates the switch and controls the connection between the battery pack and the heating plates 110.

In operation, the loops 118 are placed on the finger and thumb (for example) in the manner illustrated in FIG. 2 and the housing 102 placed in the palm of the same hand. The pads 100 can then be connected to the loops 118 in a manner which provides the desired orientation of the pads. Pressing the button 102B enables electrical power to be supplied to the heating plates 110 which raises the temperature of the heating plates 110. After the plates 110 have assumed a sufficiently high temperature, strands of hair can then be selectively gripped between the pads 100 and the pads 100 slid along the hair strands in manner desired by the user. The disposition of the pads 100 on the finger and thumb (or any other two digits) which is possible with the embodiment of the invention which is shown in FIG. 4, enables the user to dexterously control the positioning and effect of the heated pads.

It should be appreciated that the embodiments of the invention are generally limited to the treatment of fringes and small strands due to the limited amount of power and heating surface area that are available.

FIG. 5 shows an embodiment of the invention which is provided with a support strap 120. This strap 120 can be connected to the housing 102 using a connector arrangement similar to those used to connect the finger loops 118 and the pads 100. This support strap 120 can be used to support the housing 102 either on the inner side of the wrist in the illustrated manner or on the back of the hand.

Although the invention has been described with reference to only a limited number of embodiments it will be understood that a person or skill in the art to which the invention pertains or mostly closely pertains, would, given the proceeding disclosure, be able to envisage various variations/embodiments without departing from the scope of the invention which is limited only by the appended claims.

For example, while the embodiment of the invention has been described as having a heating element in each of the pads, it is possible to provide only one heating element in one of the two pads and use this to apply heat to the hair being treated. Under these conditions, the other pad would be provided with a thermal insulative plate which could be made of or coated with a IR reflective material to reflect back heat from the electrically heated element.

In addition, the length and shape of the pads can be varied. The surfaces of the pads which contact the hair can be rippled or contoured to increase the surface area in contact with the hair and/or provided some desired styling effect. Alternatively, the pads can be replaced with a wire or wires which reduces the mass of the heating elements and thus shorten the period necessary for the heating elements to reach a suitable operating temperature.

1. A hair treatment arrangement comprising:
   a first pad configured to be supported on a first digit of a user’s hand so as to be exclusively movable therewith; and
   a second pad configured to be supported on a second digit of the user’s hand so as to be exclusively movable therewith.

2. A hair treatment arrangement as set forth in claim 1, further comprising a housing operatively connected with each of the first and second pads through flexible leads and configured to selectively supply electrical current to heating elements in the first and second pads.

3. A hair treatment arrangement as set forth in claim 1, wherein the first and second digits of the hand are the thumb and index finger.

4. A hair treatment arrangement as set forth in claim 2, wherein the housing configured to be supported in a palm of the user’s hand.

5. A hair treatment arrangement as set forth in claim 4, wherein the housing is a pod-shaped housing.

6. A hair treatment arrangement as set forth in claim 1, wherein the first and second pads further comprise ring members through which the first and second digits of the hand can be inserted.
7. A hair treatment arrangement as set forth in claim 6, wherein the ring members are detachably connected to the first and second pads by connection arrangements.

8. A hair treatment arrangement as set forth in claim 2, wherein the housing contains a self-contained source of EMF (electromotive force).

9. A hair treatment arrangement as set forth in claim 2, wherein the housing contains a battery.

10. A hair treatment arrangement as set forth in claim 4, wherein the housing is provided with a switch which is configured to be operated by a button provided on the housing.

11. A hair treatment arrangement as set forth in claim 2, wherein the first and second pads are connect to each other only by flexible leads which respectively extend from the housing.

12. A hair treatment arrangement comprising:
- separate finger supported pads which are each configured to be supported on a finger or thumb of a hand; and
- a heating element disposed in at least one of the pads and configured to apply heat as the pads are pressed together and slid over selected strands of hair.

13. A hair treatment arrangement as set forth in claim 12, wherein the pads have ring-shaped members configured to receive the finger or the thumb.

14. A hair treatment arrangement as set forth in 13, wherein the ring-shaped members are detachably connected to the pads by a connection arrangement and are configured so that they can be disposed on the finger or the thumb and then connected with the pads to allow a desired disposition/orientation of the pads with respect to the finger or thumb.

15. A hair treatment arrangement as set forth in 14, wherein the connection arrangement comprises a hook and eye connection arrangement wherein a first half of the hook and eye arrangement is fastened to a ring and the second half of the hook and eye arrangement is fastened to a pad.

16. A hair treatment arrangement as set forth in claim 12, further comprising a housing configured to fit in a palm of the hand and to be gripped by at least one of the ring and little fingers of the hand.

17. A hair treatment arrangement as set forth in claim 16, wherein the housing is operatively connected with the at least one heating element (110) through at least one flexible cable, and further configured to supply electrical current to the at least one heating element.

18. A hair treatment arrangement as set forth in claim 17, in claim wherein the housing comprises a switch which is configured control the supply of electrical current to the heating elements and to be operated by a button on the housing.

19. A method of treating hair comprising:
- supporting separate pads, at least one of which has a heating element disposed therein, on first and second digits of a hand so that the first and second pads are respectively movable with the first and second digits; and
- selectively supplying electrical current to the at least one heating element while gripping hair between the first and second pads and sliding the first and second pads along the hair.

20. A method as set forth in claim 19, further comprising:
- supporting a housing, which is configured to supply the electrical current to the at least one heating element through at least one flexible lead, in the palm of the hand, on the wrist or on the back of the hand.

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