

DUAL MODE FLAT IRON

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to personal hair care appliances and, more particularly, to styling irons of a type generally known as “flat irons.”

Description of Related Art

Known flat irons for styling hair typically comprise two paddle-like members each having a handle end and a heated end. The handle ends are joined to one another to form a hinge, while the heated ends are free so they can be opened and closed away from and toward each other, respectively. The heated ends typically have a smooth, thermally conductive surface, such as metal, to transfer heat from an internal electrical heater to a user's hair when the hair is placed in contact with the thermally conductive surfaces, referred to as “heated plates”.

Certain flat irons have smooth heated plates to impart a straightening style to a user's hair. In operation, a swatch of user's hair is positioned between the two heated plates and, via the hinge, the plates are closed toward one another. The flat iron is drawn away from the user's scalp so that the hair runs through and is in contact with both plates. Heat from each plate is transferred to the hair.

Other flat iron style appliances have plates with contours such as ridges, or such as general curves, to impart non-straight styles to the user's hair. A known configuration is to provide one heated plate as having a convex shape when viewed from a distal end, and to provide the other heated plate as having a complementary concave shape so that they close together in close fashion.

To utilize more than one of the various types of configurations of heated plates, a user must purchase more than one styling iron or flat iron.

OBJECT OF THE PRESENT INVENTION

It is an object of the present invention to provide a styling iron or “flat iron” type device for styling a user's hair in which both straightening and curved styling can be achieved with a single device.

This object and other objects are achieved by the present invention.

SUMMARY OF THE PRESENT INVENTION

in a preferred mode of the present invention, a styling iron comprises a first section, a second section and a third section. The first section comprises a handle end and a distal end that includes a heated plate having a hair contact surface of a flat configuration. The second section comprises a proximal end and a distal end that includes a heated plate having two hair contact surfaces, each facing opposite directions. The first of these hair contact surfaces is of a flat configuration. The second of these hair contact surfaces is of a concave configuration. The third section comprises a handle end and a distal end that includes a heated plate having a hair contact surface of a convex configuration. A conventional, electrically powered heat element (not shown) of the type generally known in the art for flat irons and hair styling irons is located internally in each of the first section, the second section and the third section. Each handle end and the proximal end are joined together at a joint to which the first section and the second section rotate about in a hinged manner relative to the proximal end of the third section. An electrical cord extends therefrom to deliver electrical energy from an external source in a manner generally known. The proximal end of the third section includes control buttons and a display to operate such functions as ON/ OFF and set temperatures or times or the display visual signals. These control and display functions and associated components are of a type generally known.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view of an appliance according to a first embodiment of the present invention shown in a fully closed position.

Figure 2 is a perspective view of an appliance according to a first embodiment of the present invention shown in a partially closed position.

Figure 3 is a perspective view of an appliance according to a first embodiment of the present invention shown in a partially closed position.

Figure 4 is a side view of an appliance according to a first embodiment of the present invention shown in a fully opened position.

Figure 5 is a side view of an appliance according to a first embodiment of the present invention shown in a fully closed position.

Figure 6 is a side view of an appliance according to a first embodiment of the present invention shown in a partially closed position.

Figure 7 is a top view of an appliance according to a first embodiment of the present invention.

Figure 8 is a bottom view of an appliance according to a first embodiment of the present invention.

Figure 9 is an end view of an appliance according to a first embodiment of the present invention shown from the proximal end.

Figure 10 is an end view of an appliance according to a first embodiment of the present invention shown from the distal end.

DESCRIPTION OF THE PRESENT INVENTION

Referring to Figs. 1 – 10, in a preferred mode of the present invention, a styling iron 1 comprises a first section 2, a second section 3 and a third section 4. The first section 1 comprises a handle end 5 and a distal end 6 that includes a heated plate 7 having a hair contact surface 8 of a flat configuration. The second section 3 comprises a proximal end 9 and a distal end 10 that includes a heated plate 11 having two hair contact surfaces 12 and 13, each facing opposite directions. The first of these hair contact surfaces 12 is of a flat configuration. The second of these hair contact surfaces 13 is of a concave configuration. The third section 4 comprises a handle end 14 and a distal end 15 that includes a heated plate 16 having a hair contact surface 17 of a convex configuration. A conventional, electrically powered heat element (not shown) of the type generally known in the art for flat irons and hair styling irons is located internally in each of the first section 2, the second section 3 and the third section 4.

Each handle end 5, 14 and the proximal end 9 are joined together at a joint 18 to which the first section 2 and the second section 3 rotate about in a hinged manner relative to the proximal end 9 of the third section 4. An electrical cord 19 extends therefrom to deliver electrical energy from an external source in a manner generally known. The proximal end 9 of the third section 4 includes control buttons 20 (three buttons shown

side-by-side in the drawing figures) and a display 21 to operate such functions as ON/OFF and set temperatures or times or the display visual signals. These control and display functions and associated components are of a type generally known.

Each of the first section 2 and the third section 4 are provided with an extending locking member 22, 23. Each locking member 22, 23, respectively, engages with one of locking openings 24, 25 on opposite sides of the second section 3. A moveable locking element 26 mounted to the second section 3 slides to selectively lock or unlock, one at a time, each of the first section 2 and third section 4 relative to the second section 3. The sliding element 26 openings 24, 25 are each configured to receive a portion of a respective one of the locking members 22, 23 in a manner so that only one locking member 22, 23 is engaged at a time. Similar locking mechanisms for securing tong-style appliances having two hinged portions including hair appliances are generally known in the art and any one of various such mechanisms can be used with the present invention. Thus, in one mode, the styling iron 1 can be opened and closed with respect to the first section 2 and the third section 4, where opposing flat surfaces 7 and 12 are used like a standard flat iron, while the second section 3 remains locked in a position closed with respect to the third section 4. In another mode, the second section 3 and the third section 4 can be opened and closed with respect to each other so that the styling iron 1 functions as a standard flat iron with mating convex and concave surfaces 17 and 13, while the first section 2 remains locked to and closed with respect to the third section 4.

A first ionic port 27 is provided on the same side as the first hair contact surface 12 of the second member 3, and a second ionic port 28 is provided on the same side as the second hair contact surface 13 of the second member 3. An ion generator (not shown) of a type generally known is located internally inside the second member 3, which generates ions to be emitted from the ionic ports 27, 28 while the appliance 1 is operating. Optionally, a button and control (not shown) can be included to selectively turn the ionic generator on and off, or to control its intensity.

Various coatings may be applied to one or more of the heated surfaces, such as ceramic or nanosilver. The heated surfaces may be of other materials such as glass or ceramic and they may be covered with fabrics including woven fabrics for hair styling and heat transfer. Steam output capability may be provided to the styling iron 1 of the

present invention including one or more water reservoirs that convert water to steam for emission during use.

A fabric coating 29 or flocking material, or other type of material, may be applied to one or both of the outer surfaces of the distal ends of the first and third sections 2, 4.

While the preferred mode of the present invention has been disclosed, it is possible to modify or enhance the present invention without departing from the scope of the present invention.

CLAIMS

WHAT IS CLAIMED IS :

1. A hair styling appliance comprising

- a first member having a proximal section and a distal section;
- a second member having a proximal section and a distal section;
- a third member having a proximal section and a distal section;

a hinged section at which each of said first, second and third members are pivotally attached to each other and each being rotatable with respect to the others, such that the second member is positioned between the first member and the third member;

a first hair contact surface adapted to contact a user's hair, said first hair contact surface being mounted to the distal end of said first member and said first hair contact surface is a flat plane;

a second hair contact surface adapted to contact a user's hair, said second hair contact surface being mounted to the distal end of said second member on a first side of said second member such that it faces the first hair contact surface, and said second hair contact surface is a flat plane;

a third hair contact surface adapted to contact a user's hair, said third hair contact surface being mounted to the distal end of said third member and said third hair contact surface is convex from an end view perspective; and

a fourth hair contact surface adapted to contact a user's hair, said fourth hair contact surface being mounted to the distal end of said second member on a second side of said second member such that it faces the third hair contact surface, and said fourth hair contact surface is a concave from an end view perspective and configured to mate with said third hair contact surface when said second member and said third member are closed together.

2. A hair styling appliance according to claim 1, further comprising

an electrical cord attached to said appliance for delivering electrical energy to said appliance;

an electrically-powered heat element adapted to provide heat to at least one of said first, second, third or fourth hair contact surfaces.

3. A hair styling appliance according to claim 1, further comprising
an electrical cord attached to said appliance for delivering electrical energy to said appliance;

a plurality of electrically-powered heat elements, each one corresponding to and adapted to provide heat to one of said first, second, third or fourth hair contact surfaces.

4. A hair styling appliance according to claim 1, further comprising
a locking mechanism for selectively locking said first member to said second member or for selectively locking said second member to said first member.

5. A hair styling appliance according to claim 2, further comprising
an electrically-powered ion emitter for emitting ions from said appliance.

6. A hair styling appliance according to claim 3, further comprising
a pair of electrically-powered ion emitters for emitting ions from said appliance.

7. A hair styling appliance according to claim 2, further comprising
a set of control buttons for turning said appliance on and off and for controlling temperature of said heat element; and
a display for displaying information relative to operation of said appliance.

8. A hair styling appliance according to claim 3, further comprising
a set of control buttons for turning said appliance on and off and for controlling temperature of said heat elements; and
a display for displaying information relative to operation of said appliance.

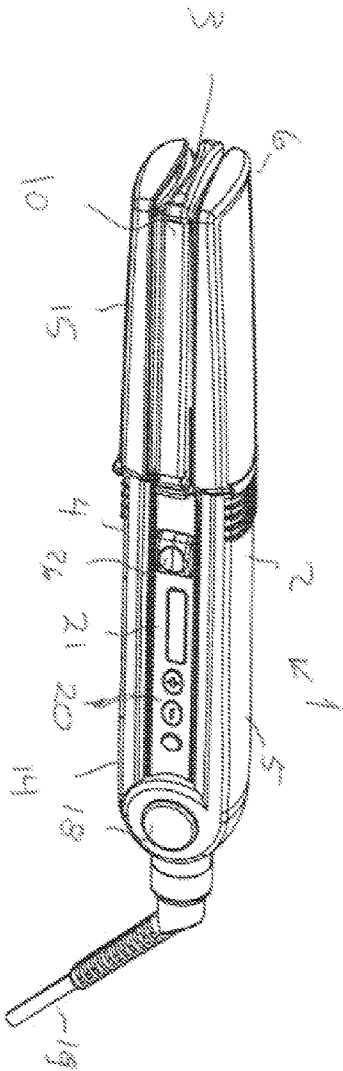
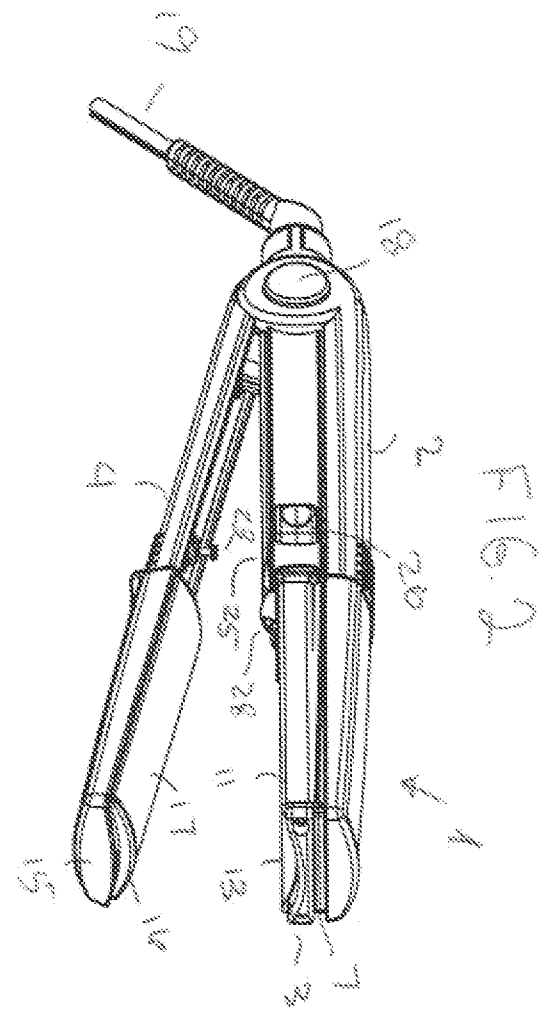


FIG. 1



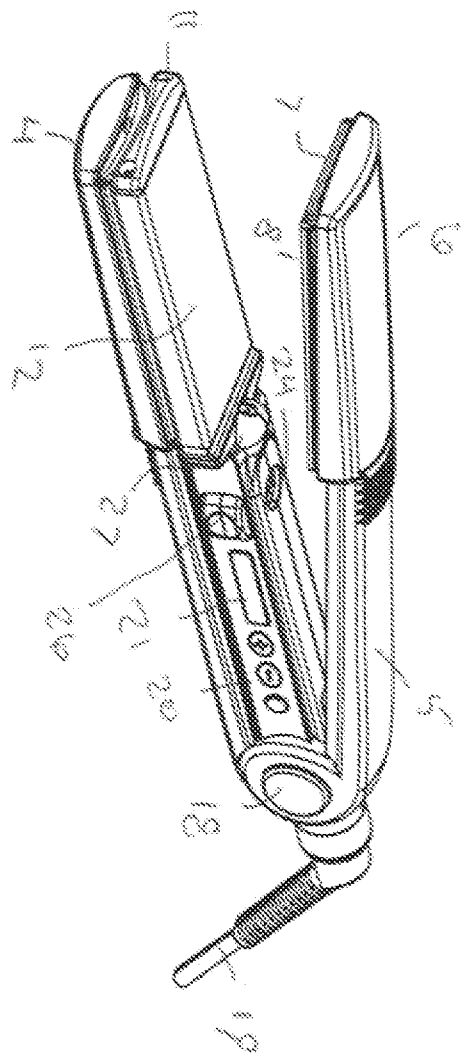
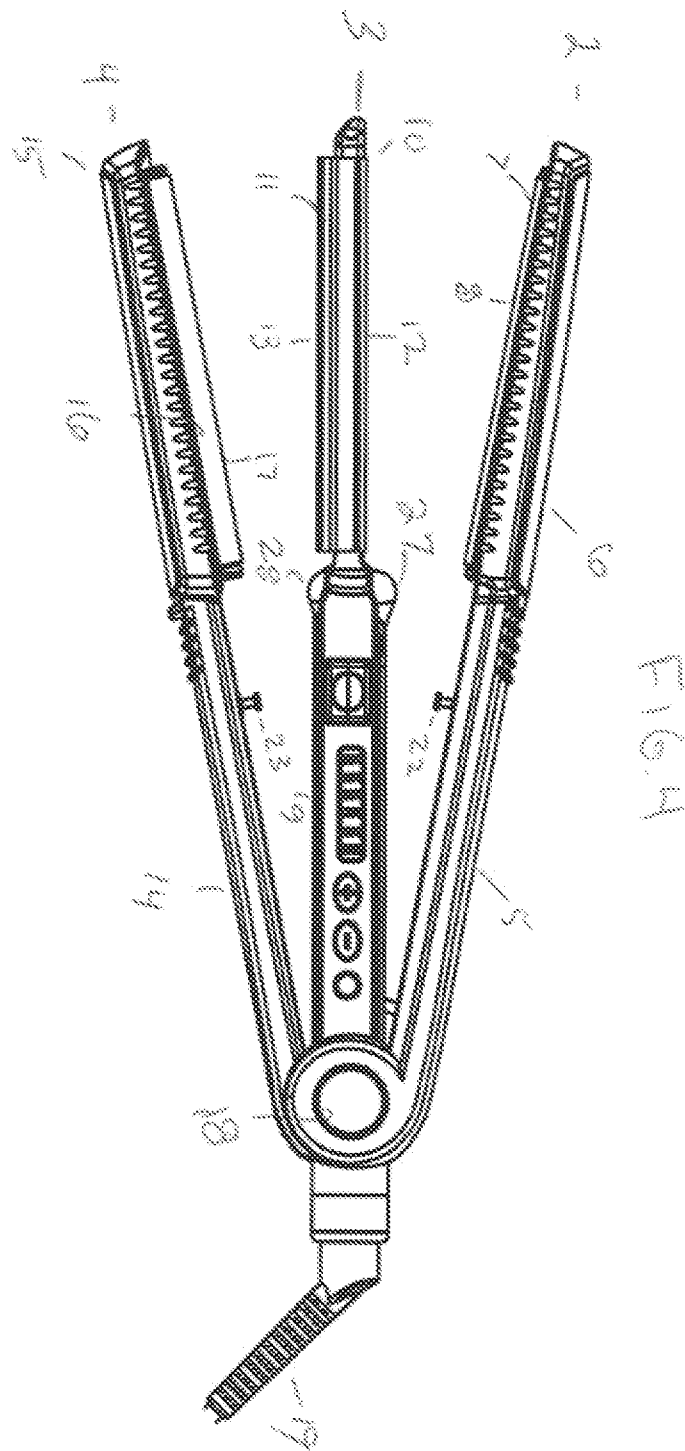
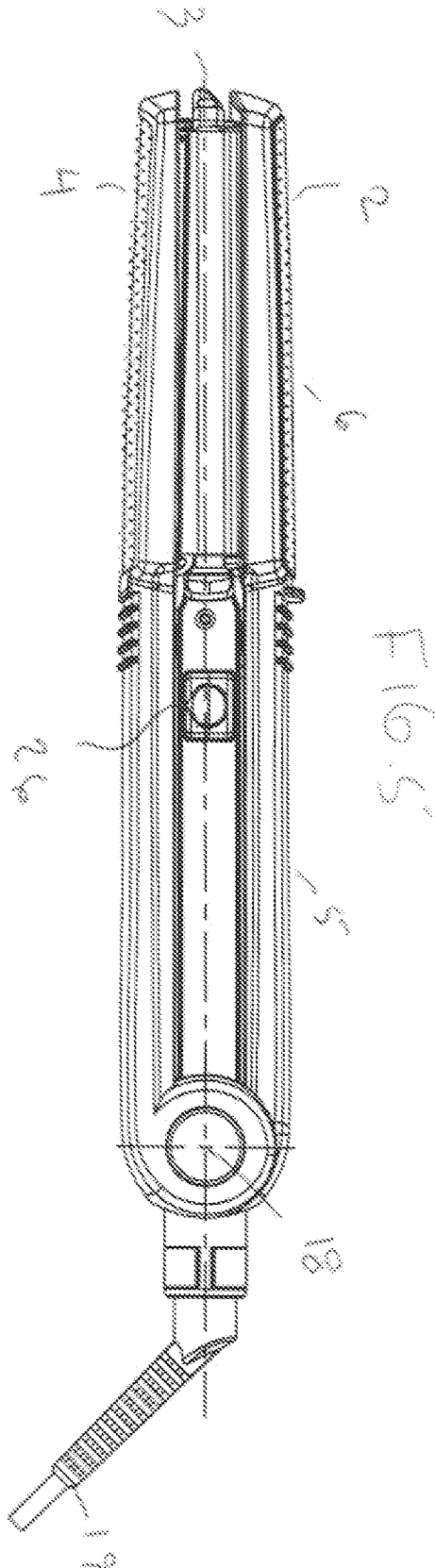
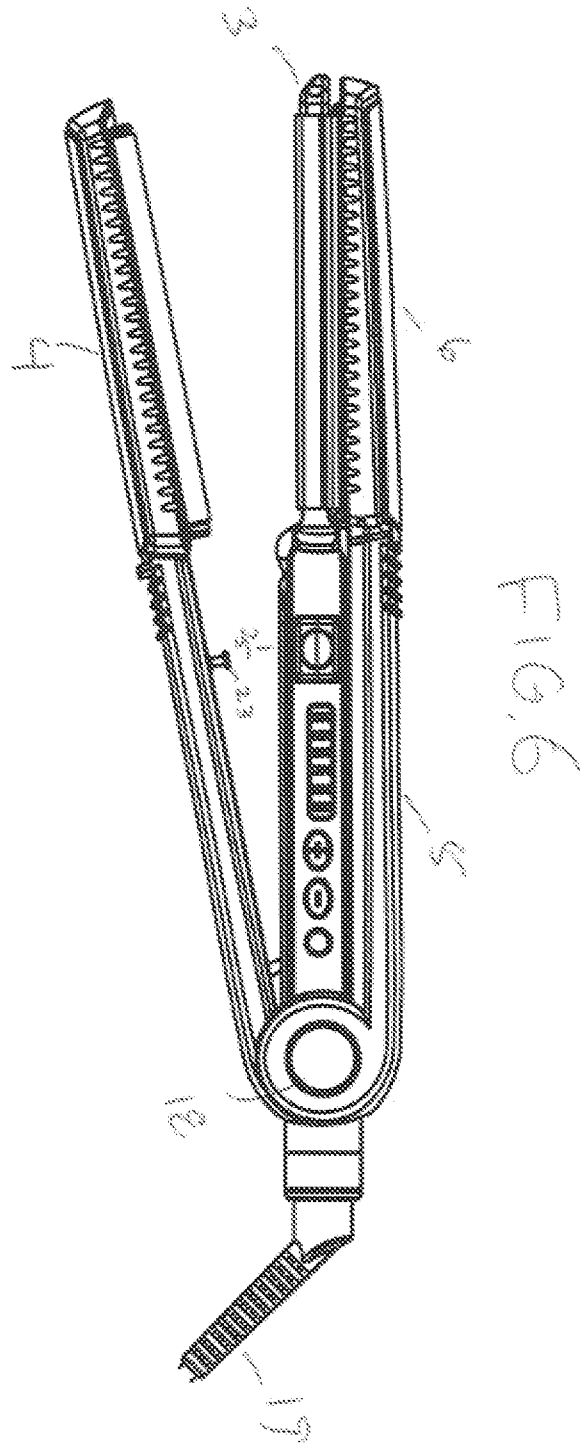
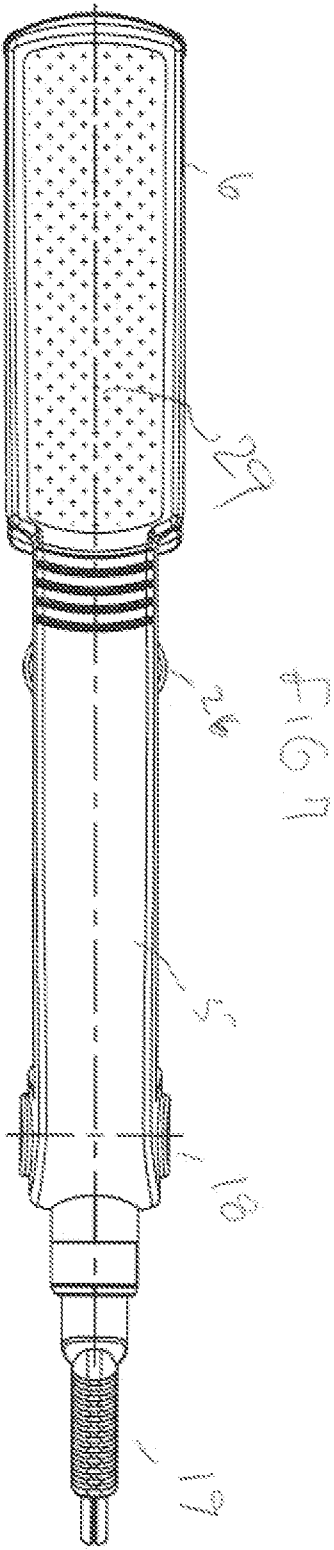


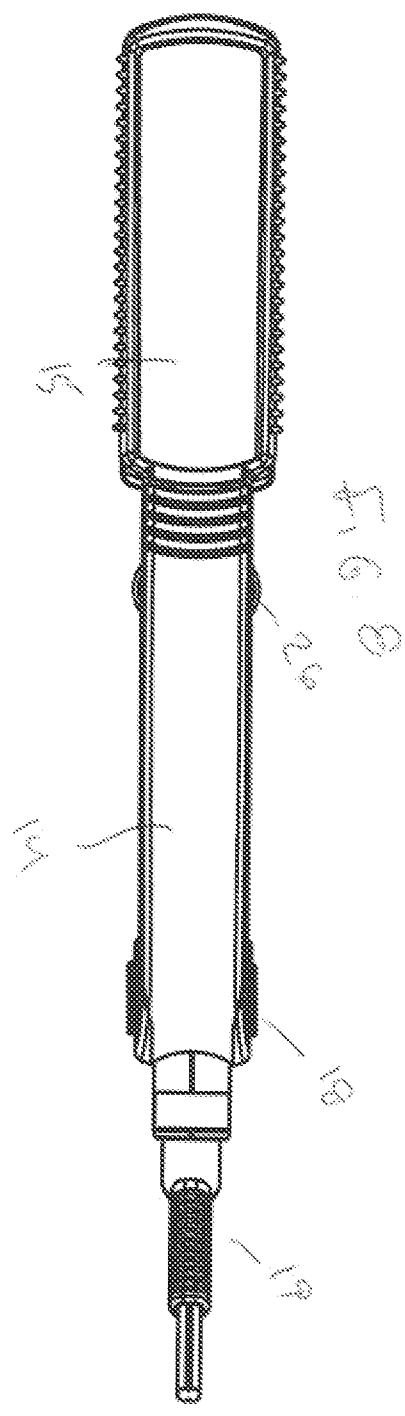
FIG. 3

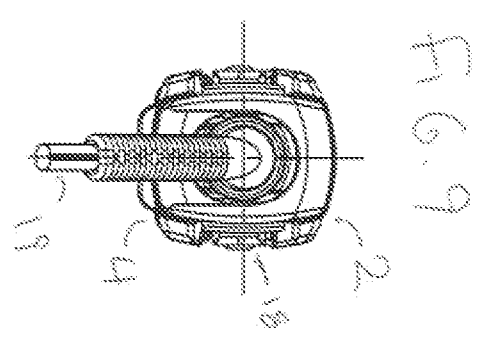


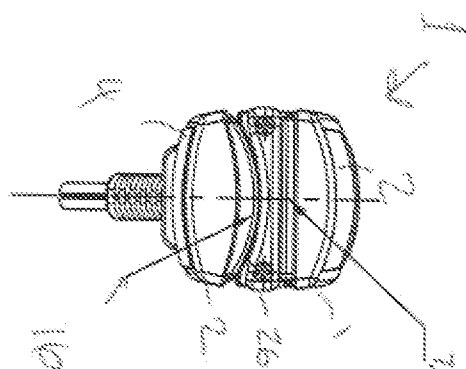












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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 09/46754

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A45D 1/00 (2009.01)

USPC - 132/224

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(8) - A45D 1/00 (2009.01)

USPC - 132/224

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC - 132/223, 229, 271, 263, 269 (text search - see terms below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PubWEST(USPT,PGPB,EPAB,JPAB); Google Scholar; Google Patents

Search Terms: hair, styling, curl, straight, hinge, pivot, cord, lock, heat, element, ion, emit, button, display, second, multiple, pair, dual, mode, flat, iron, curved, surface, third, fourth

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X — Y	US 5,223,694 A (Tsuji et al.) 29 June 1993 (29.06.1993), entire document especially Fig 1, 2, 8 and 11, col 2, ln 24-27, col 4, ln 58-66, col 5, ln 5-9 and ln 17-20	1-4 — 5-8
Y	US 2005/0198855 A1 (Cafaro et al.) 15 September 2005 (15.09.2005), para [0002]	5 and 6
Y	US 2005/0011533 A1 (Ruben) 20 January 2005 (20.01.2005), Fig 1, para [0021] and [0025]	7 and 8

☐ Further documents are listed in the continuation of Box C.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

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15 July 2009 (15.07.2009)

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