ELECTRIC HAIR CURLING IRON

Field of the Invention

[0001] The present invention generally relates to an electric hair curling device, and in particular to a rotatable electric hair curling device.

Background

[0002] Hair iron is a hairstyling tool used to change the structure of the hair through heat. There are two types of hair irons; flat or straightening irons and curling irons. As its name implied, straightening irons are used to straighten the hair and curling irons are used to create waves or curls in the hair.

[0003] Various types of curling irons or curling tongs are available in the market. During operation, a small portion of hair is clamped between a heated cylindrical barrel and a clamp member. The curling iron is then rolled up towards the hair root so that the hair is wrapped around the heated barrel. With heat, the hair is held around the curling iron for a few seconds and once the curl is formed, the hair can be unwrapped from the curling irons.

[0004] US 4,565,916 assigned to Matshushita Electric Works, Ltd discloses an electric hair curling iron with a rotatable power cord. The electric power supply cord is connected to the electrically heated rod by a rotatable connector located on the end of the first handle. The axis of rotation of the connector is designed to be coaxial with the centerline between the two handles and to be in the same plane as the pivotal

connection between the handles, such that the hair curling iron can be rotated without twisting the power cord.

[0005] US 4,604,514 assigned to Windmere Corporation discloses an electric curling iron with rotatable main handle and clamp handle for enabling the cylinder and the clamp member to be rotated within the hand of the user while the hair is clamped between the clamp member and the cylinder. The main and clamp handle are each equipped with a locking mechanism selectively movable between a first position locking the respective handle against rotation and a second position wherein the respective handles are free to rotate.

Summary

[0006] The following presents a simplified summary to provide a basic understanding of the present invention. This summary is not an extensive overview of the invention and is not intended to identify key features of the invention. Rather, it is to present some of the inventive concepts of this invention in a generalized form as a prelude to the detailed description that is to follow.

[0007] The present invention provides an electric hair curling iron. According to one aspect of the invention, the electric hair curling device comprises a main handle, a cylindrical barrel attached to the main handle at the proximal end for emitting heat operationally, a clamp member extending along one side of said barrel and is shaped cylindrically to complement a shape of the barrel, and a thermally insulated tip coupled to the cylindrical barrel, which is rotatable relative to the cylindrical barrel.

[0008] In one embodiment of the present invention, the electric hair curling device further comprises an electrical cable for supplying electrical power, which is coupled to a distal end of the main handle.

[0009] In another embodiment of the present invention, the thermally insulated tip is configured as a small handle for gripping during operation.

[0010] In yet another embodiment of the present invention, the cylindrical barrel and the electrical cable are rotatable relative to the main handle.

[0011] The objectives and advantages of the present invention will become apparent from the following detailed description of embodiments thereof in connection with the accompanying drawings.

Brief Description of the Drawings

[0012] Preferred embodiments according to the present invention will now be described with reference to the figures accompanied herein, in which like reference numerals denote like elements;

[0013] **FIG. 1** illustrates a side view of an electric hair curling device according to one embodiment of the present invention;

[0014] **FIG. 2** illustrates a side view of the device shown in **FIG. 1** in a user's hands with its clamp plate being lifted up;

[0015] **FIG. 3** illustrates a side view of the device shown in **FIG. 1** in a user's hands with its clamp plate being lowered down; and

[0016] **FIG. 4** illustrates a perspective view of an electric hair curling device in accordance with another embodiment of the present invention.

Detailed Description

[0017] Embodiments of the present invention shall now be described in detail, with reference to the attached drawings. It is to be understood that no limitation of the scope of the invention is thereby intended, such alterations and further modifications in the illustrated device, and such further applications of the principles of the invention as illustrated therein being contemplated as would normally occur to one skilled in the art to which the invention relates.

[0018] **FIG. 1** shows an electric hair curling device **1** in accordance with one embodiment of the present invention. The electric hair curling device comprises a main handle **10**, a cylindrical barrel **20**, a clamp member **30**, a thermally insulated tip **50**, and an electrical cable **60** for connectin to a current supply (not shown). The components of the electric hair curling device **1** are attached together along an axis with the thermally insulated tip **50** forming the top of the device **1**, followed by the cylindrical barrel **20**, the main handle **10** and the electrical cable **60**. The thermal insulated tip **50** is rotatably mounted on a distal end of the cylindrical barrel **20**. The thermal insulated tip **50** is rotatable relative to the cylindrical barrel **10**. The proximal end of the cylindrical barrel **20** is attached to the main handle **10**. In the current embodiment, the cylindrical barrel **20** is fixed onto the main handle **10**.

[0019] The clamp member **30** is pivotly mounted at a short distance from the proximal end on the cylindrical barrel **20** with a clamp plate **32** extends along one side of the cylindrical barrel **20**. The clamp plate **32** is cylindrically shaped to complement

the curve of the cylindrical barrel **20**. The clamp member **30** is spring loaded at the pivot to keep the clamp plate **32** on the cylindrical barrel **20**. A clamp handle **40** extended towards the opposing side of the clamp plate **32** and projected on the main handle **10** is provided for user handling. When the clamp handle **40** is pressed against the main handle **10**, the clamp plate **32** is pivotly lifted to open the clamp member **30**.

[0020] Typically, the main handle **10**, on top of being a handle, is also a housing for components, and the controlling means of the electric hair-curling device **1** may also be disposed at the proximal end of the handle **10**. In accordance with a further embodiment, the electric hair-curling device may further provide a display screen for showing operating states and other relevant information.

[0021] The electrical cable **60** for supplying electrical power is coupled to a distal end of the main handle **10**. It may be desired that the electrical cable **60** be configured to be rotatable about the axis against the main handle **10** in an alternative embodiment.

[0022] **FIGs. 2** and **3** show perspective views of the electric hair curling iron in user's hand with its clamp plate being lifted up and lowered down respectively. During operation, the user grips the main handle **10** and presses the clamp handle **40** down against the main handle **10** to lift up the clamp plate **32**. A section of the hair to be curled is then inserted between the heated cylindrical barrel **20** and the clamp plate **32**. Once the section of the hair is clamped on the cylindrical barrel **20**, the user may have one hand holding the main handle **10** and the other holding the thermal insulated tip **50**. Then the user may start rolling the main handle **10** with the hand holding thereon while keeping the other hand holding the thermally insulated tip **50** steady. As the hand

rolling the main handle **10** together with the cylindrical barrel **20**, the hair to be curled is wrapped around the cylindrical barrel **20**. As the other hand is holding the thermally insulated tip **50**, the thermally insulated tip **50** remains static relative to the cylindrical barrel **20**, thus providing a steady support to the electrical hair-curling device **1** operationally. Such steady support makes the overall curling process easier and less tiring for the user, as the effort required for the wrist joints to make the rotation movement is now shared by the two hands, instead of one. At the same time, having the user to hold the rotatable thermal insulated cap **50** while operating the device **1** also may prevents the heated cylindrical barrel **20** to accidentally come in contact with the user's skin during operation.

[0023] **FIG. 4** illustrates the electrical hair-curling device **1** in accordance with an alternative embodiment of the present invention. The electrical hair-curling device **1** is adapted with the cylindrical barrel **20** rotatably attached to the main handle **10**. The cylindrical barrel **20** is also rotatable about the axis thereof. Accordingly, user needs to only rotate the cylindrical barrel **20** against the main handle **10** operationally. Typically, the rotations to wrap the hair to be curled require only the thumb and the index finger to operate while the hand remains gripping the main handle **10**. Similarly, user may hold on to the thermally insulated tip **50** operationally to provide a steady support. This way of operation significantly reduces strain to the hand rotating the cylindrical barrel **50**.

[0024] In a further embodiment, the thermally insulated tip **50** can be configured as a relatively small handle for better gripping. The thermally insulated tip **50** can further be shaped ergonomically for holding comfort. The thermally insulated

tip **50** can be any thermally insulated means that rotatably attached to the cylindrical barrel **50** such that it is rotatable freely about the axis against the cylindrical barrel **50**.

[0025] While specific embodiments have been described and illustrated, it is understood that many changes, modifications, variations and combinations thereof could be made to the present invention without departing from the scope of the invention.

Claims

1. An electric hair curling device comprising:

a main handle;

a cylindrical barrel attaching to said main handle at a proximal end, said cylindrical barrel operationally emitting heat;

a clamp member extending along one side of said cylindrical barrel and shaped cylindrically to complement a shape of said cylindrical barrel, said clamp member being used to clamp hair onto said cylindrical barrel; and

a thermally insulated tip coupled to said barrel, wherein said thermally insulated tip is rotatable relative to said cylindrical barrel.

2. The electric hair curling device of claim 1, wherein said device further comprises an electrical cable for supplying electrical power, said electrical cable is coupled to a distal end of said main handle.

3. The electric hair curling device of claim 1, wherein said cylindrical barrel is rotatably attached to said main handle, said cylindrical barrel is rotatable relative to said main handle.

4. The electric hair curling device of claim 1, wherein said cylindrical barrel being fixed to said main handle.

5. The electric hair curling device of claim 1, wherein said clamp member further comprises a clamp handle for user handling, said clamp handle extending towards the opposing side of said clamp member and projected on said main handle.

5. The electric hair curling device of claim 1, wherein the thermally insulated tip is configured as a small handle for gripping during operation.

6. The electric hair curling device of claim 2, wherein said electrical cable is rotatably attached to said main handle, said electrical cable being rotatable relative to said main handle.

7. An electric hair curling device comprising:

a main handle;

a cylindrical barrel attaching to said main handle at a proximal end, said cylindrical barrel operationally emitting heat and being rotatable relative to said main handle;

a clamp member for clamping hair onto said cylindrical barrel, said clamp member comprising a clamp plate extending along one side of said cylindrical barrel, which is shaped cylindrically to complement a shape of said cylindrical barrel and a clamp handle for user handling, which is extending towards the opposing side of said clamp member and is projected on said main handle;

a thermally insulated tip coupled to said cylindrical barrel, wherein said thermally insulated tip is rotatable relative to said cylindrical barrel and is configured as a small handle for gripping during operation; and

an electrical cable for supplying electrical power, wherein said electrical cable is coupled to a distal end of said main handle and is rotatable relative to said main handle.

8. An electric hair curling device comprising:

a main handle;

a cylindrical barrel attaching to said main handle at a proximal end, said cylindrical barrel operationally emitting heat and being fixed to said main handle;

a clamp member for clamping hair onto said cylindrical barrel, said clamp member comprising a clamp plate extending along one side of said cylindrical barrel, which is shaped cylindrically to complement a shape of said cylindrical barrel and a clamp handle for user handling, which is extending towards the opposing side of said clamp member and is projected on said main handle;

a thermally insulated tip coupled to said cylindrical barrel, wherein said thermally insulated tip is rotatable relative to said cylindrical barrel and is configured as a small handle for gripping during operation; and

an electrical cable for supplying electrical power, wherein said electrical cable is coupled to a distal end of said main handle and is rotatable relative to said main handle.