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Oshita et al.

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[54] **HAIR CURLER**

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[52] **U.S. Cl.** ..... **132/33 R**

[51] **Int. Cl.** **A45d 2/12**

[58] **Field of Search** ..... 132/33 R, 40, 42, 132/39

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[57] **ABSTRACT**

A hair curler has curler bobbins each adapted to accumulate heat from heating means for radiating accumulated heat to hair wound on the bobbin so that hair is set in curled state. The curler bobbin includes an inner sleeve and an outer sleeve which has its minimum outer diameter at longitudinal intermediate portion which gradually increases toward opposite ends. A plurality of projections are formed on peripheral outer surface of the outer sleeve to facilitate winding of hair thereon and prevent hair from becoming loosened.

5 Claims, 4 Drawing Figures

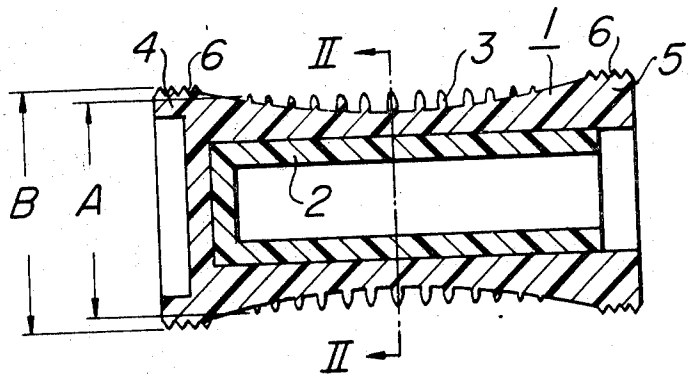


FIG. 1

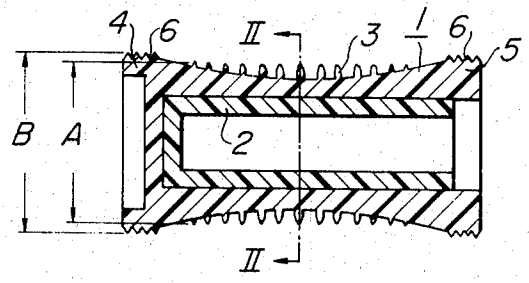


FIG. 2

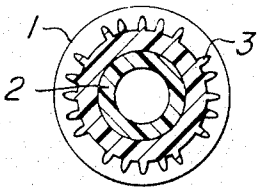


FIG. 3

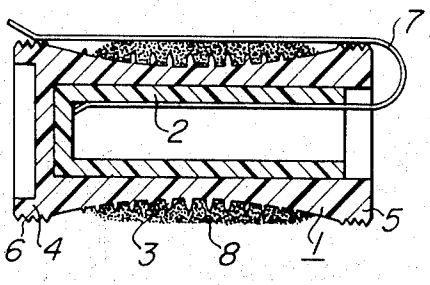
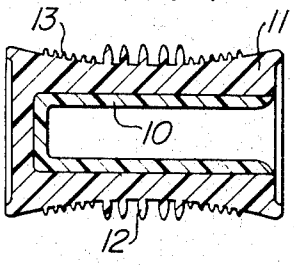


FIG. 4



HAIR CURLER

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a hair curler of a type that includes curler bobbins each adapted to accumulate heat from heating means so as to radiate the accumulated heat to the hair wound on the bobbin so that the hair is set in curled state. The invention particularly relates to such a type of curler bobbin as specified and which includes an outer sleeve having its minimum outer diameter at a longitudinal intermediate portion which increases gradually toward the opposite ends of the sleeve as in the axial sectional configuration of a bobbin for yarns.

2. Description of Prior Art

There is known a prior art curler bobbin which has an outer sleeve and an inner sleeve of a heat resistant plastic material. The outer sleeve has a cylindrical outer peripheral surface on which a plurality of projections are formed and arranged in groups. The outer ends of the projections are positioned on circles of diameters larger than the outer diameter of the outer sleeve of the curler bobbin. This tends to disadvantageously cause hair to be wound on the outer sleeve in such a manner that an extremely large amount of hair is concentrated and piled up at the longitudinal intermediate portion of the curler bobbin while an extremely small amount of hair is placed on the outer surface of the bobbin at portions adjacent the end portions of the outer sleeve. This fashion is quite inconvenient to a user when she is required to secure her hair together on the curler bobbin by means of a hair clip or holder. In addition, the projections extending radially outwardly from the outer surface of the outer sleeve are tended to be brought into direct and unpleasant contact with and irritate the skin of the user's head.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a hair curler comprising curler bobbins each of which can be easily manipulated and which not only facilitates winding of hair thereon but also prevents hair from becoming loosened.

It is another object of the present invention to provide a hair curler of the kind specified and in which the curler bobbin has formed thereon projections which can be prevented from being brought into direct contact with the skin of a user's head when the curler bobbin is put on her hair.

It is a further object of the present invention to provide a hair curler of the kind specified and in which the projections are so arranged on the outer peripheral surface of the curler bobbin that the heat accumulation is substantially equalized and uniformalized throughout the length of the curler bobbin.

According to the present invention, there is provided a hair curler comprising at least a curler bobbin including an outer sleeve and an inner sleeve received within said outer sleeve, said outer sleeve having a longitudinal sectional configuration like that of a bobbin for yarns and having its minimum outer diameter at the longitudinal intermediate portion of said outer sleeve, the outer diameter of said outer sleeve increasing gradually toward the opposite ends of said outer sleeve, said outer sleeve being formed with a plurality of projections on the peripheral outer surface thereof. This feature of the invention not only facilitates the manipulation of the curler bobbin and the winding of hair thereon but also prevents the wound hair from becoming loosened.

In one aspect of the invention, the projections may be so dimensioned that the radially outer ends thereof are positioned on circles having diameters smaller than the maximum outer diameter of the outer sleeve whereby the projections are prevented from being inadvertently and accidentally brought into direct contact with the skin of a user's head when the curler bobbin is put on her hair.

In a further aspect of the invention, the projections may include two types of projections, the projections of one type being thicker and longer than the projections of the other type and disposed in an axial intermediate peripheral surface area of said outer sleeve, the projections of said other type being disposed in the peripheral surface areas of said outer sleeve adjacent the opposite ends thereof and positioned relative to each other at a distance smaller than the distance between each adjacent pair of the projections of said one type. This feature of the invention is advantageous in that the varied projections not only substantially equalize and uniformalize the heat accumulation in the entire length of each curler bobbin but also radiate heat in such a manner that the hair unequally piled on the outer sleeve of the curler bobbin because of its profile is substantially uniformly processed.

The above and other objects, features and advantages of the present invention will be made apparent by the following description of preferred embodiments of the invention with reference to the accompanying drawings.

DESCRIPTION OF DRAWINGS

FIG. 1 is a longitudinal sectional view of an embodiment of a curler bobbin of the hair curler according to the present invention;

FIG. 2 is a cross-section taken along line II—II in FIG. 1;

FIG. 3 illustrates in longitudinal section the curler bobbin of the invention when in use; and

FIG. 4 is a longitudinal sectional view of another embodiment of the hair curler bobbin of the present invention.

DESCRIPTION OF PREFERRED EMBODIMENTS

Referring first to FIGS. 1 to 3 of the drawings, there is shown an embodiment of the curler bobbin of a hair curler according to the present invention which includes a hollow outer sleeve 1 of a heat resistant plastic material. The outer sleeve 1 has a longitudinal sectional configuration like that of a bobbin for yarns. Namely, the outer diameter of the outer sleeve 1 is reduced and minimum at the longitudinal intermediate portion thereof. The reduced diameter increases gradually toward the opposite ends of the outer sleeve 1, as will be best seen in FIGS. 1 and 3. The outer sleeve 1 is closed at one end and has a generally cylindrical inner surface in which is snugly received a cylindrical inner sleeve 2 of a heat resistant plastic material.

The outer sleeve 1 has formed thereon a plurality of projections 3 which are integral with the outer sleeve and are arranged in a plurality of rows and extend substantially radially outwardly from the outer peripheral surface of the sleeve 1. The projections 3 are for main-

taining or keeping hair wound around the curler bobbin. In the illustrated embodiment of the invention, the projections **3** have their tops or outer ends positioned in a generally cylindrical plane having a diameter A which is smaller than the maximum diameter B of the outer sleeve **1** at the end portions thereof. This feature provides an advantage that the skin of a user's head is prevented from being contacted and irritated by the tops of the projections **3** when the curler bobbin of the invention is put on her hair. In addition, the projections **3** have varied lengths or heights, i.e., the projections located at the longitudinal intermediate portion of the curler bobbin have the largest heights and, the nearer to the ends of the curler bobbin the projections are located, the smaller are the heights thereof. This feature is advantageous in that heat is accumulated generally uniformly throughout the length of the curler bobbin. It will be appreciated that, unless the curler bobbin has this feature, the longitudinal intermediate portion of the bobbin is less operative to accumulate heat as compared with the end portions thereof because the intermediate portion has the minimum wall thickness due to the bobbin-like sectional configuration of the outer sleeve **1.**

The outer sleeve **1** has a pair of flanges **4** and **5** of the above-mentioned maximum diameter B formed at the opposite ends thereof. A plurality of annular grooves **6** may be formed, as illustrated, in the peripheral outer surface of each of the flanges **4** and **5** so as to prevent slippage of hair on the curler bobbin during winding and/or curling operation of hair thereon.

In operation, the afore-described curler bobbin of the present invention will be first received on a heating rod which is heated by means of a heater which is not a part of the invention and is not shown. The heating rod heats the inner sleeve **2** within the outer sleeve **1** so that the heat is accumulated in the inner sleeve **2** and the outer sleeve **1.** The curler bobbin is then taken off the heating rod. Hair is immediately wound around the curler bobbin in such a manner that the hair is first placed and wound on the intermediate smaller diameter portion of the outer sleeve **1** and the process is proceeded while gradually spreading the hair toward the outer, large diameter portions of the outer sleeve **1.** The hair **8** wound around the curler bobbin presents a generally inverted triangular cross-section as will be seen in FIG. **3.** A clip **7** is used to secure the hair together on the curler bobbin. The hair is thus heated by the heat radiated from the outer sleeve **1** and, particularly, the projections **3** formed thereon and, therefore, is set by the heat in curled state.

As will be seen in FIG. **3,** the general outer surface of the wound hair lies in a plane substantially cylindrical or parallel to the axis of the curler bobbin. The hair clip **7** is therefore enabled to easily and completely hold and secure the pile of hair together on the curler bobbin. In addition, because the projections **3** do not extend outwardly beyond the maximum outer diameter B at the flanges **4** and **5** on the outer sleeve **1,** the projections are not caused to contact and irritate the skin of a user's head and, thus enable her to perform a comfortable curling operation. Moreover, the annular grooves **6** formed in the peripheral outer surfaces of the flanges **4** and **5** facilitate winding of hair on the curler bobbin as the grooves prevent hair from being slipped off the ends of the curler bobbin when hair is being wound thereon.

FIG. **4** of the drawings illustrates another embodiment of the curler bobbin according to the present invention. This embodiment comprises an inner sleeve **10** of a heat resistance plastic material which is snugly received in an outer sleeve **11** having a longitudinal sectional configuration like that of a bobbin for yarns, i.e., having its minimum outer diameter at the longitudinal intermediate portion which gradually increases toward the end portions of the outer sleeve **11.**

The outer sleeve **11** has a plurality of integral projections which are classified into two types **12** and **13.** The projections **12** are formed on the outer sleeve **11** in an axial intermediate peripheral surface area thereof while the projections **13** are formed on the sleeve **11** in the peripheral surface areas adjacent the ends of the outer sleeve **11.** It will be apparent that the projections **12** are thicker and longer than the projections **13.** In addition, the projections **13** are positioned relative to each other at a distance smaller than the distance between each adjacent pair of projections **12.** These features avoid a shortcoming that the longitudinal intermediate portion of the curler bobbin having smaller wall thickness is less operative to accumulate heat as compared with the end portions of the curler bobbin having larger wall thickness. In fact, the projections **12** and **13** of varied size are operable to substantially uniformalize or equalize the heat accumulation in the curler bobbin as well as to radiate heat matching with varied thickness of the pile of the hair wound on the outer sleeve **11.** More specifically, the thicker and longer projections **12** located at the longitudinal intermediate portion of the outer sleeve **11** are operable to radiate heat sufficient to deal with larger amount of hair wound on this intermediate portion of the outer sleeve **11** while the shorter and thinner projections **13** adajcent the end portions of the outer sleeve **11** are designed to radiate heat appropriate to set curls on a smaller amount of the hair located on these end portions of the outer sleeve **11.**

What is claimed is

1. A hair curler including a heat accumulating tubular body comprising an outer tubular hollow element of a heat resistant plastic material; an inner tubular hollow element of a heat resistant plastic material fitted into said outer element, said outer element having an outer diameter being a minimum at an axial intermediate portion and increasing gradually toward a maximum outer diameter at opposite ends of said outer element, so that said outer element is provided with a gently curved outer peripheral surface, said inner element being adapted to temporally receive a heating rod of a heater for heating said inner and outer elements to accumulate heat in said inner and outer elements; a plurality of projections formed on said curved outer peripheral surface, the projections adjacently disposed in the axial intermediate peripheral surface area of said outer element being larger dimensioned than the projections adjacently disposed in the peripheral surface areas of said outer element adjacent to the ends thereof; and means for securing turns of hair together on said heat accumulating tubular body.

2. A hair curler as claimed in claim **1,** in which the projections disposed in the axial intermediate peripheral surface area are longer than the projections disposed in the peripheral surface areas of said outer element adjacent the ends thereof.

3. A hair curler as claimed in claim **1,** in which the adjacent projections disposed in the peripheral surface

areas of said outer element adjacent the ends thereof are positioned relative to each other at a smaller distance than the distance betwen each adjacent projection disposed in the axial intermediate peripheral surface area of said outer element.

4. A hair curler as claimed in claim **2,** in which said projections have their outer ends positioned in a cylindrical plane substantially coaxial with the axis of said outer and inner elements and having a diameter smaller than said maximum outer diameter of said outer element.

5. A hair curler as claimed in claim **1,** in which said means for securing turns of hair together include a hair clip.

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