United States Patent

Wise

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[54] HAIR ROLLER WITH RANGE TEMPERATURE INDICATOR

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

[58] **Field of Search** ..... 132/33 R, 40, 41, 9; 219/222, 219/506; 116/114.5; 236/94; 73/363.7, 343

[56] **References Cited**

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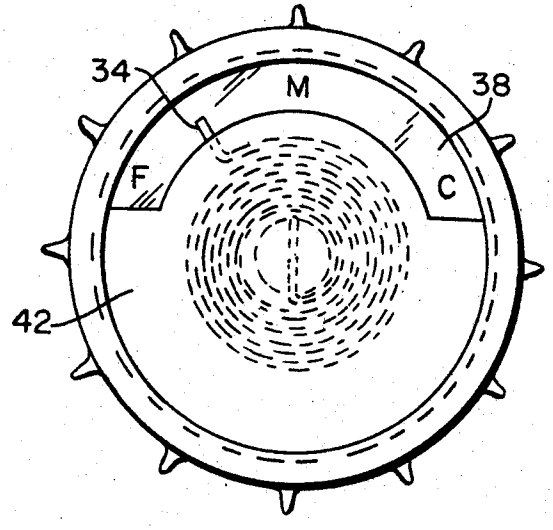
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[57] **ABSTRACT**

The invention provides a hair curler wherein a bimetallic element is utilized as a temperature indicating means in conjunction with a dial arrangement so as to provide a range of temperatures for user selection based on her personal hair and/or skin characteristics.

7 Claims, 4 Drawing Figures



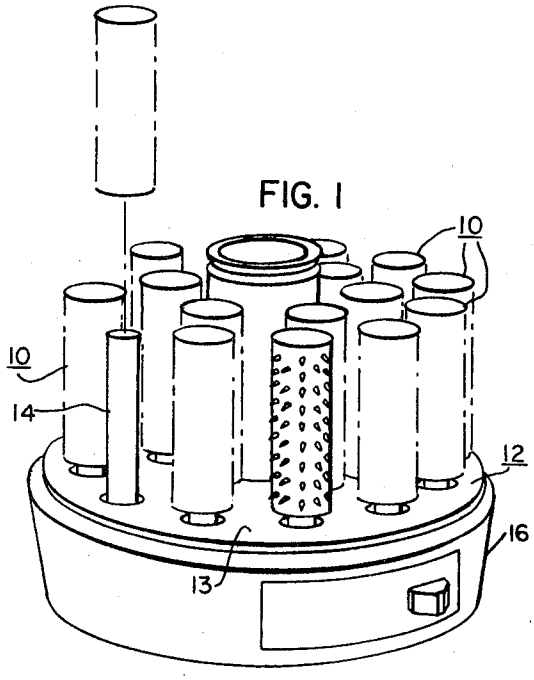


FIG. 1

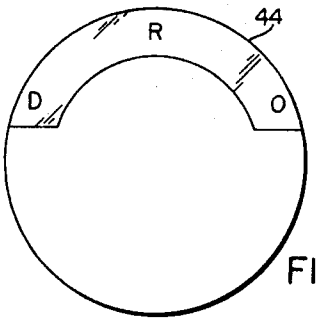


FIG. 4

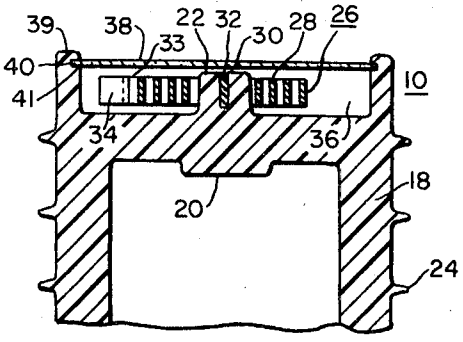


FIG. 2

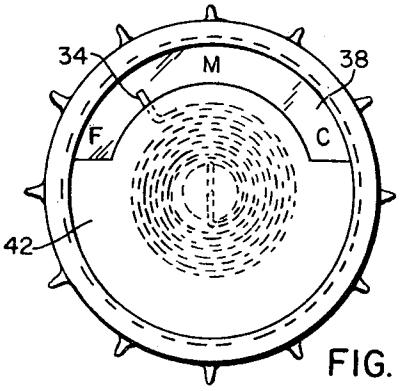


FIG. 3

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HAIR ROLLER WITH RANGE TEMPERATURE INDICATOR

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to the hair curling art and, more particularly, relates to a hair curler having a temperature indicator means mounted on the rollers.

Description of the Prior Art

It has been found important to control the temperature to which hair rollers are heated so as to eliminate discomfort resulting therefrom and also to limit the splitting of the ends of the hair by overheating. Prior art attempts at controlling the temperature at which curling occurred, have utilized thermostatic control of the heating means which heated all of the individual hair rollers such as shown in U.S. Pat. No. 3,486,000 issued Dec. 23, 1969 or have utilized temperature indicators on the rollers such as colored dots which change color when the hair roller has reached a desired temperature, or, alternately, have utilized latch arrangements that release the hair rollers from the heating platform once a preset temperature for hair curling has been reached such as shown in U.S. Pat. No. 3,415,254 issued Dec. 10, 1968.

However, none of the aforementioned hair curler arrangements make positive provision for user-temperature preference once the hair rollers have been heated to a preselected hair curling temperature. Accordingly, it would be advantageous to provide a hair curling arrangement wherein at least one or perhaps all of the hair roller units provided a temperature range indication means so that the user could select that portion of the range most advantageous to her, personally.

SUMMARY OF THE INVENTION

According to the principles of the invention individual hair rollers are provided having a bimetallic coil thermostatic element mounted adjacent each of their tops. An integral pointer, formed by a portion of the bimetallic coil, is included and a dial placed over the top which may be indexed relative to the pointer. The dial contains indications which are related to hair quality, such as: fine, medium or coarse or such as: dry, regular or oily. Thus, a range of readings is provided so that the user may select hair rollers as they reach the temperature which is most adapted for her own particular hair characteristics.

It is contemplated, in the practice of this invention, that a plurality of sizes of hair rollers will be provided, such as: small, medium and large and that these hair rollers will be mounted on a conventional heating element including stems, integral with the base heating member so that the various sized rollers will reach the desired temperature at different rates and thereby different times. Of course, the small rollers would be first to reach the proper curling temperature, then the medium rollers and finally the large. The user could then conveniently select the rollers as they come to temperature and place them in her hair, rolling the hair around each of the rollers to finally provide a hair style arrangement suitable to her.

DRAWING DESCRIPTION

For a better understanding of the invention, reference may be had to the preferred embodiment, exemplary of the invention, shown in the accompanying drawings, in which:

FIG. 1 is a perspective view of the hair rollers arranged on their heating platform;

FIG. 2 is a partial cross-sectional view of a single hair roller embodying the invention;

FIG. 3 is a top plan view of the heated hair roller of FIG. 2; and

FIG. 4 is a top plan view of another type of dial which may be utilized in carrying out the principles of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

There is shown in FIG. 1 a series of hair rollers **10** which include my invention mounted on a heating platform **12**. The heating platform **12** has a series of metallic stems **14** protruding through a top plate **13**, with these stems being of such diameter to accommodate the smallest and largest sized rollers **10**. Top plate **13** has disposed, beneath it and within a shell-like enclosure **16** of heating platform **12**, a heating element (not shown) which transfers its heat to the metallic stems **14** for eventual heating of the rollers **10**. The rollers **10** receive heat through conduction and radiation from the stems **14**. The shell-like enclosure **16** also conveniently may mount a thermostat (not shown) which is set to open at some upper limiting temperature to prevent the overheating of the base **12** or melting the hair rollers **10**.

The rollers **10** are comprised of a hollow cylindrical body **18** made of a plastic material such as glass filled polypropylene with a single, closed end **20** and with this end spaced somewhat inwardly from the outer termination of the roller **10**. Extending generally axially centrally relative to the linear extent of the roller **10** is a stud member **22** formed integral with the body portion **18** and integrally attached thereto at the end **20** to extend outwardly therefrom. The stud member **22** terminates short of the outer termination of the roller **10**. The body **18** of hair roller **10** is completed by a series of outwardly extending teeth **24** formed integrally with the body **18** and spaced around the outer periphery of the roller so as to provide a means for engaging and catching within the hair being curled therearound.

In carrying out the principles of my invention, a thermoresponsive means **26** is disposed adjacent the outer ends of the hair rollers **10**. This thermoresponsive means consists essentially of a bimetallic spiral **28** which is mounted on the stud member **22** by being inserted in a diametrical groove **30** formed therein. An inner straight end **32** of the bimetallic spiral **28** is received within this groove and the remainder of the bimetallic spiral is disposed in a series of even larger coils that extend around the stud member **22**. At the outer periphery of the bimetallic spiral **28** a generally straight end **34** is provided that extends substantially outwardly at a right angle from tangency with the closest adjacent portion of the outer coil **33**. This end of bimetallic spiral **28** forms the indicating means or pointer for temperature reading by the user of the hair roller **10**.

Because of the inward displacement of the end **20** of the body **18** from the outward termination thereof, a space **36** is provided within which the bimetallic spiral **28** is mounted for movement of its end **34**. This space is then sealed by an indicator dial **38**. The indicator dial **38** is placed in a non-removable manner on and within the body of the roller **18** by means of a flange **39** which is formed in the said body, this flange being generally annular so as to fixedly retain the indicator dial **38** with the body **18**. The assemblage of these two elements is obtained by inserting the indicator dial **38** in an annular bore or enlarged bore portion **40** formed in body **18** and terminated by a face **41** so that the space **36** represents a stepped bore before assembly of the indicator dial **38**. The indicator dial **38** is held therein (in the bore **40**) against the face **41** by a pressurized heating operation which turns the flange **39** downwardly against the indicator dial **38**. The periphery of the indicator dial **38** is thereby fixedly held and retained to the body **18** by the flange **39**. Just prior to this assembly operation, the hair roller **10** is calibrated by rotating the dial **38** so that it is located relative to the end **34** of bimetallic spiral **28** so as to give a proper reading of temperature as the hair roller is heated.

The dial **38** itself, may include a series of indications thereon such as "F," "M" and "C" indicating that the temperature setting is for fine, medium and coarse hair. A portion of the dial shown at **42** may be blanked out as is shown in FIG. **3** and FIG. **4** so that the bimetallic spiral **28** is not observable through the transparent dial **38** except for the extending end

34 which serves as the indicator means that moves between the aforesaid indices "F," "M" and "C" as the roller heats from hot to hotter.

An alternate indicator dial 44 is shown in FIG. 4 wherein the indications utilized are "D," "R" and "O." These indications may be related to dry, regular and oily hair and may alternately be used as a guide by the consumer in the proper use of the roller 10. Removal of the roller 10 from the metallic stems 14 then may be had when the indicator 34 has moved to or close to that indication which best serves for the setting of the user's hair.

The operation of the hair roller 10 is rather simple. The consumer may be guided in its usage by the indicator end 34 moving into the proper temperature range as indicated by the indices "F," "M" and "C" or "D," "R" and "O," contained on the dials 38 or 44. Essentially the operation is as follows: the hair rollers 10 are placed upon the base 12 and the heating element contained therein (not shown) energized to provide a heating effect through the metallic stems 14 to each of the hair rollers 10. The smaller hair rollers 10 will obviously reach curling temperature first so these would be the first ones selected by the user. They would be removed from the base 12 as the indicator end 34 reached that temperature range in which the user had found the proper hair curling temperature. Next, the intermediate sized hair rollers 10 would be removed and these would be utilized, and finally the large size hair rollers 10 would be removed and utilized. Thus, each series of rollers would be removed from their metallic stem 14 upon the temperature range being reached which was best for the user of the hair curling appliance.

It should be obvious that the hair rollers 10 and indicating dial arrangement provided therein offers a temperature selector range for the user which is not available in prior art hair curlers and that such a range provides a large number of different temperatures which the user of the appliance may select for proper hair curling temperature. It should also be obvious to one skilled in the art that many modifications can be made to the invention described and that many of these modifications will fall within the spirit and scope of the description offered.

What is claimed is:

1. A hair roller including:
a. an integrally molded cylindrical, substantially hollow body;
b. an integrally molded end cap for said body, said end cap displaced from the termination of said body;
c. a space provided between said end cap and said termination of said body;
d. a stepped bore provided by said space; including an enlarged bore portion,
e. an index means disposed over said end cap and substantially enclosing said space;
f. said index means being disposed in said enlarged bore portion and being maintained in integral molded cylindrical, substantially hollow body by an inturned flange formed in the outer termination of said enlarged bore portion;
g. a bimetallic spiral thermostatic means disposed in said space; and
h. an end of said bimetallic spiral means providing an indicator for readout of a series of temperatures of said hair roller.

2. The hair roller set out in claim 1 wherein:
a. said index means is rotatable in said enlarged bore portion for positioning with respect to said indicator formed by said bimetallic spiral means; and
b. said inturned flange is then formed for holding said index means in a selected position relative to said indicator formed by said bimetallic spiral means.

3. The hair roller set out in claim 1 wherein:
a. said bimetallic spiral means has an inner and an outer end;
b. said inner end is fixed to said body; and
c. said outer end provides a movable indicator for indicating temperatures.

4. The hair roller set out in claim 3 wherein:
a. said end cap includes an integral stem; and
b. said stem fixedly mounts said fixed inner end of said bimetallic spiral.

5. The hair roller set out in claim 4 wherein:
a. said stem includes groove means; and
b. said fixed end of said bimetallic spiral is disposed in said groove means.

6. A hair roller including:
a. a cylindrical, substantially hollow body;
b. an end cap for said body displaced from the termination of said body;
c. a space provided between said end cap and said termination of said body;
d. an index means placed over said end cap and enclosing said space;
e. a bimetallic spiral thermostat means disposed in said space;
f. said bimetallic spiral thermostat means including a moving end, said moving end providing a pointer means for indicating for readout of a series of temperatures of said hair roller.

7. A hair roller including:
a. a temperature indicating means;
b. a hair roller body;
c. said temperature indicating means mounted in said body and including a pointer means for movement proportional to an attained temperature; and
d. an index means for relating attained temperature to a desired temperature range for hair curling purposes.

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