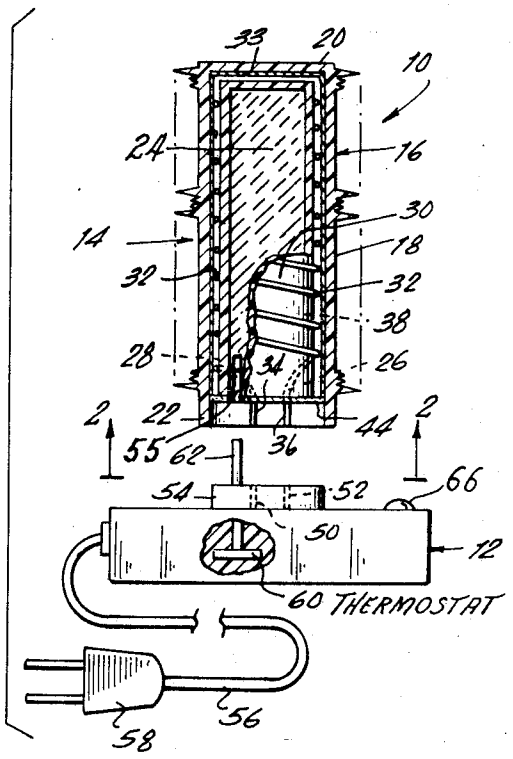
Dec. 23, 1969 A. N. D'ELIA ET AL 3,486,000

TEMPERATURE CONTROL MEANS FOR ELECTRICALLY HEATED HAIR CURLER

Filed March 22, 1968

FIG. 1



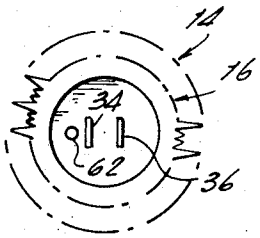


FIG. 2

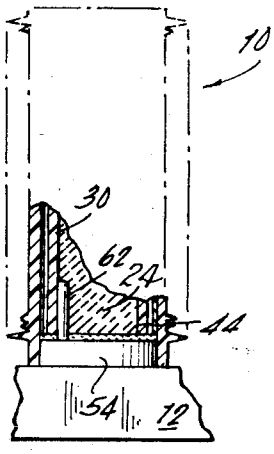


FIG. 3

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TEMPERATURE CONTROL MEANS FOR ELECTRICALLY HEATED HAIR CURLER

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Continuation-in-part of applications Ser. No. 581,336, Sept. 22, 1966, and Ser. No. 606,780, Jan. 3, 1967. This application Mar. 22, 1968, Ser. No. 715,358
Int. Cl. A45d 1/28, 2/36; H05b 3/42
U.S. Cl. 219—222 5 Claims

ABSTRACT OF THE DISCLOSURE

A hair curling assembly comprises an electrically heated hair curler and a base for detachably supporting the curler during heating thereof. The curler includes a nonmetallic housing having disposed therein a refractory ceramic insert having an electric heating coil wound thereon. The housing is provided with electrical contacts for detachably electrically connecting the curler to mating electrical contacts in the base when the curler is supported on the base. A thermostat is provided in the base for controlling the passage of electric power to the curler. A thermally conductive rod engages the thermostat and projects into the housing and into engagement with the insert for transferring heat from the insert to the thermostat.

This invention relates to a cosmetic appliance and more particularly to an electrically heated hair curler and is a continuation-in-part of application Ser. No. 606,780, filed Jan. 3, 1967, and application Ser. No. 581,336, filed Sept. 22, 1966.

Various types of roller curlers have been devised for use in setting hair. Many of these devices employ configurations and/or prongs about which the hair is entrained. It has been found, however, that when roller curlers are used for obtaining hair settings, especially for straight hair styling, application of heat is often desirable. One form of roller curler for hair previously employed was designed so that the hair curler could be heated by boiling in water, after which the heated curler was then used in setting the hair. This is a time consuming and unhandy procedure due to the fact that the heated curler is often difficult, distasteful or painful to handle and therefore must be allowed to cool sufficiently to allow for the touching thereof by the user thus reducing the effective operating temperature of the curler. However, the optimum temperature for use in setting the hair is in the order of 145° F to 160° F. which may be somewhat distasteful to the touch, but when entrained in the hair and insulated thereby from the skin is unobtrusive. To this end, the present invention has for its object the provision of a hair curler that may be electrically heated and is so arranged that for a predetermined period after the curler has been subjected to electric heating, the outer surface thereof is not heated so that the curler is completely comfortable for handling in use when setting the hair.

In carrying out the invention, the hair curler employs an insert of a refractory material such as ceramic, porcelain, or the like, which is disposed in an outer housing or covering with the insert being so arranged to have an electric heating coil wound thereabout whereby after the heating coil has been excited for a predetermined period of time, the heat from the heating coil does not pass to the outer surface of the housing for a further predetermined period of time, thereby allowing the hair curler to be employed before the outer surface heats

up and thus treats the hair entrained about the particular hair curler.

It is a particular object of the invention to provide a hair curler assembly having a novel arrangement of thermostatic control means so that the hair curler may be safely and efficiently heated in a minimal period of time.

It is yet another object of the invention to provide a roller curler for use in setting hair that may be electrically heated by simply plugging into a suitable device, and which is provided with a thermostatically controlled safety means for insuring against the possibility of overheating the roller curler, which safety means includes a base mounted thermostat, and a heat transfer rod engageable with the thermostat and extending into the curler.

It is a further object of the invention to provide a hair curler which may be safely and efficiently heated in a minimal period of time, which will retain the heat.

It is yet another object of the invention to provide a roller curler for use in setting hair that may be electrically heated by simply plugging into a suitable device, and which is provided with a thermostatically controller safety means for insuring against the possibility of overheating the roller curler, which will retain the heat after disconnection.

Still further objects and features of the invention reside in the provision of a roller curler that is simple in construction, strong and durable, capable of being manufactured out of readily available materials, yet which may be utilized and employed in conventional hair setting procedures and which will better condition the hair for a particular styling by providing optimum amounts and degree of heat for a predetermined period of time.

These, together with the various ancillary objects and features of the invention, which will become apparent as the following description proceeds, are attained by these roller curlers, preferred embodiments being shown in the accompanying drawing, by way of example only, wherein:

FIG. 1 is an exploded vertical sectional view of a hair curler assembly including a hair curler and energizing appliance utilized in accordance with the concepts of the present invention;

FIG. 2 is a bottom plan view of the roller curler looking in the direction of line 2—2 in FIG. 1; and,

FIG. 3 is a partial vertical sectional view of the parts in an assembled position.

With continuing reference to the accompanying drawing, wherein like reference numerals designate similar parts throughout the various views, reference numeral **10** generally designates a preferred embodiment of the invention, which includes two main portions, an energizing appliance **12** and a roller curler, generally designated at **14**. The roller curler **14** includes an outer housing **16** provided with cylindrical side walls **18**, an upper end wall or top **20**, which is integral with the side walls and a lower sleeve portion **22** which extends below cylindrically shaped electrically insulated insert **24** concentrically disposed within the housing **16**.

The insert **24** is of a non-conductive material, preferably formed of a refractory ceramic or porcelain-like substance, and is provided with a pair of spaced bores **26** and **28** therethrough disposed centrally and well inwardly from the outer surface of the ceramic insert **24**.

The insert **24** is securely mounted in a phenolic sleeve **30**, with which it is coextensive, disposed within the outer housing **16** around which a Nichrome heating element **32** is disposed. A mica or like insulative shield **33** is positioned between the outer housing **16** and the phenolic sleeve **30**. A contact prong **34** extends through the bore **28** of the insert **24** which prong **34** is connected to one end of the Nichrome heating element **32**. The Nichrome

heating element **32** is spirally wrapped about the phenolic sleeve **30** and is connected to a wire conductor **38**, which is connected to the other prong **36** so as to complete an operable electrical circuit within the housing of the roller curler.

The prongs **34** and **36** extend through and below an insulative plate **44** which is disposed beneath and immediately adjacent the lower end of insert **24**. The exposed portions of prongs **34** and **36** are entirely contained within the sleeve portion **22** of the housing **16** and are adapted to be inserted in socket openings **50** and **52** in a raised receptacle **54** of the energizing appliance or base **12**. The receptacle **54** is connected in any suitable manner through an electrical cord **56** and an outlet plug **58** to a suitable source of electric power. The receptacle is of such a size that the sleeve portion **22** snugly fits thereover, preventing the possibility of electric shock occurring to the user.

Mounted in the base **12** below the receptacle **54** is a thermostat **60** of conventional construction. The thermostat **60** is electrically connected between the plug **58** and sockets **50** and **52** and controls flow of electric power thereto. A heat transfer rod **62** extends upwardly from the thermostat **60** and lies between the ceramic insert **24** and sleeve **30** in a cavity formed at the periphery of insert **24** and against inner surface of the sleeve **30**, eccentrically disposed with respect to the longitudinal center line of the housing **16** and alternatively, may be fixed in any suitable manner to the energizing appliance **12** such as by being embedded therein. The rod is adapted to engage the thermostat **60** and transfer heat thereto. The rod extends through the opening **55** in the plate **44**.

Alternatively, the rod **62** can be detachably received in the roller curler **14** or in the base **12**.

Of course, any number of receptacles **54** can be employed. A signal light **66** showing actuation of each thermostat **60** can be provided and is connected in series with the thermostat **60**.

In use, the hair surler **14** is disposed into engagement with the receptacle **54** for approximately 25 seconds at which time the thermostat **60** will open the circuit. However, the heat supplied by the Nichrome heating element **32** will take a period of approximately thirty seconds to pass to the outer surface of the housing **16** so that for approximately one-half a minute, the hair curler **14** is convenient and comfortable to hold. After the hair curler has been inserted in the hair, it will give off an optimum amount and degree of heat for hair setting.

It is to be understood that ceramic material utilized is of a nature as will hold the heat which is transmitted therethrough for a preiod of time as will be sufficient to effectuate the curling of the hair.

In use, the preheated hair curler will be positioned on the head of the user and the hair will be wound around the curler after which a securement clip or band, not shown, will be inserted to maintain the hair about the curler.

A latitude of modification, substitution and change is intended in the foregoing disclosure, and in some instances, some features of the invention will be employed without a corresponding use of other features. Accordingly, it is appropriate that the appended claims be construed broadly and in a manner consistent with the spirit and scope of the invention herein.

We claim:

1. A hair curling assembly comprising a hollow non-metallic housing forming a hair curler, a non-metallic insert disposed in and substantially filling said housing, an electric heating coil wound on said insert, a base, cooperating, mating electrical connection means on said base and said housing for electrically detachably interconnecting said housing and said base, said heating coil being electrically connected to said connection means on said housing, means electrically connecting said connection means on said base to a source of electrical power, thermostatic control means in said base in circuit with said connection means on said base for controlling the passage of electrical power from said source to said connection means on said base, and a thermally conductive rod carried by one of said base and said housing and projecting therefrom, with the other of said base and said housing having receiving means receiving said rod, said rod being in heat transfer engagement with said thermostatic control means and with said insert.

2. A hair curling assembly according to claim **1**, wherein said rod is secured to said base and is removably received in said housing.

3. A hair curling assembly according to claim **2**, wherein said rod is fixed to said base and said thermostat.

4. A hair curling assembly according to claim **1**, wherein said rod is eccentrically disposed with respect to the longitudinal center line of said housing.

5. A hair curling assembly according to claim **1**, wherein said connection means includes sockets in said base, and prongs detachably received in said sockets depending from said housing.

References Cited

UNITED STATES PATENTS

1,781,244	11/1930	Oswald	219—222
2,834,868	5/1958	Greene et al.	219—442 X
2,856,508	10/1958	Kueser	219—442
3,283,122	11/1966	McNair	219—222

FOREIGN PATENTS

698,900	11/1930	France.

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U.S. Cl. X.R.

132—33; 219—241, 242, 516