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ELECTRIC HAIR CURLERS

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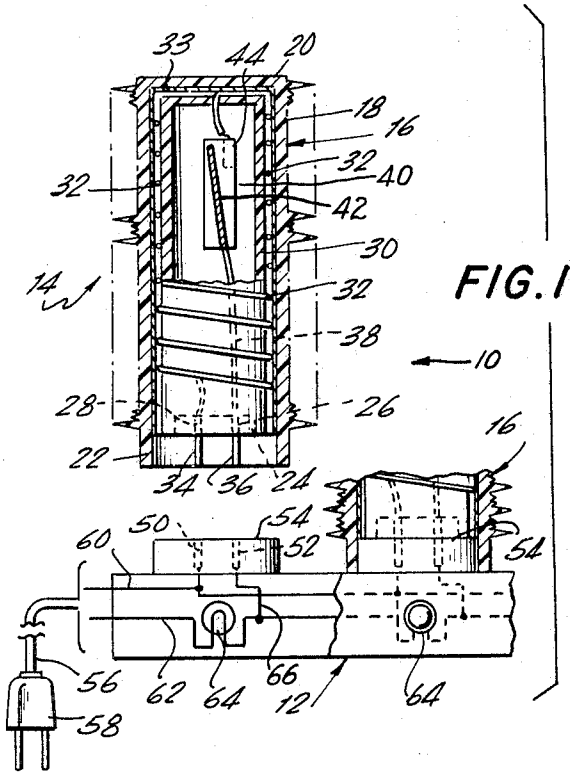


FIG. 1

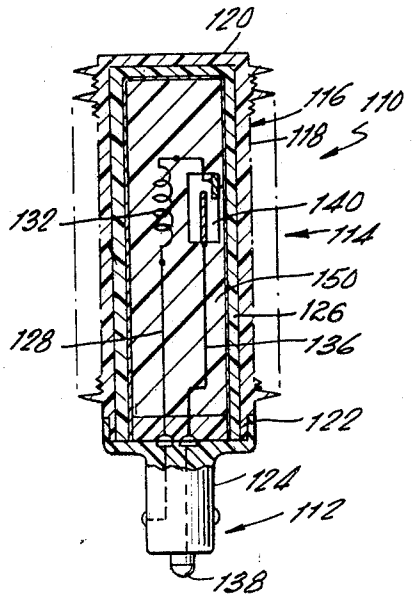


FIG. 2

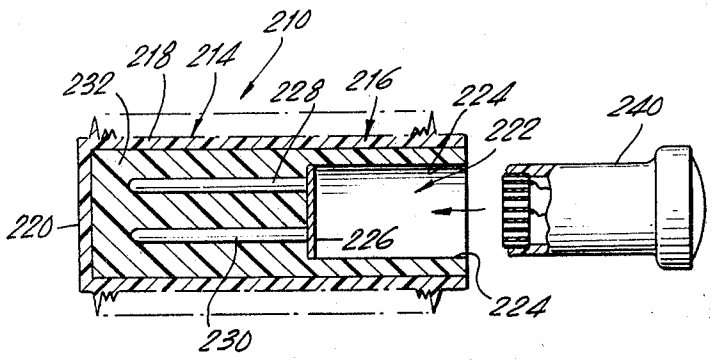


FIG. 3

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ELECTRIC HAIR CURLERS

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ABSTRACT OF THE DISCLOSURE

A hair curling assembly comprising an electrically non-conductive housing defining a hair curler, the housing having an open end, an electrically insulative phenolic sleeve being disposed in the housing. A heating element is disposed between the housing and the sleeve which supports the heating element on its outer surface. A base is provided with means on the base and the housing for detachably interconnecting the housing and the base. A plug insert, fabricated from a refractory material closes the open end of the housing and is provided with electrical contacts for electrically connecting the heating element of the curler to a source of electrical power. Thermostatic control means are disposed within the sleeve and are electrically connected in series to the plug insert and the heating element for controlling the passage of electrical power from the source to the electrical contact means.

This invention relates basically to a cosmetic appliance and more particularly to an electrically heated hair curler.

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 so as to set the same. It has been found, however, that when roller curlers are used to set hair, especially for styling straight hair, application of heat is often desirable in that a better and longer lasting set can be obtained. Various forms of roller curlers for hair have previously been designed so that the hair curler could be heated by boiling in water, after which the heated curler was then placed in the hair to set the hair. This method was a time consuming and unhandy procedure due to the fact that the heated curler was often difficult, distasteful or painful to handle and therefore necessarily had to be allowed to cool sufficiently to allow for the touching thereof by the user thus reducing the effective operating temperature of the curler. However, it has been said that the optimum temperature for use in setting the hair is in the order of 145° to 200° F. which degree of heat may be somewhat distasteful to finger touch, but when entrained in the hair and insulated thereby from the skin is unobtrusive and not uncomfortable. To this end, the present invention has for one of its objects the provision of a hair curler that may be electrically heated and which 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 to handle 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 within an outer housing or covering with the insert being so arranged to receive a heating element in the interior thereof whereby after the heating element has been excited for a predetermined period of time, the heat from the heating element does not pass immediately to the outer housing for a further predetermined period of time, thereby allowing the hair curler to be placed in the hair before the outer surface heats up and thereafter heats up to treat the hair entrained about the particular hair 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.

It is yet another object of the invention to provide a 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.

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 by an outside heating source.

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, such as an automobile cigar lighter and which is provided with a thermostatically controlled 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 employing the providing optimum amounts and degree of heat for a predetermined amount 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 and energizing appliance utilized in accordance with the concepts of the present invention;

FIG. 2 is a vertical sectional view of a modified form of the invention; and,

FIG. 3 is an exploded vertical sectional view of a further modified form of the invention.

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 and a lower sleeve portion **20** integral with the side walls and a lower sleeve portion **22** which extends below an electrically insulated insert **24** disposed within the housing **16**.

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

The insert **24** is securely mounted in a phenolic sleeve **30**, 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 compound bar type thermostat **40** which is of a

conventional construction. The thermostat **40** is suspended in the hollow interior of the phenolic sleeve **30** within the housing **16**. A wire conductor **38** is connected to the other prong **36** so as to complete an operatable electrical circuit within the housing of the roller curler.

The compound bar thermostat **40** is constructed so that it will remain closed until such a time when the Nichrome heating element reaches a temperature of 160 degrees F. at which time the compound bar **42** will open the electrical circuit within the roller curler by opening the contacts **44**. The thermostat **40** is so designed that the compound bar **42** will close the circuit by closing the contacts **44** when the temperature of the Nichrome heating element **32** drops below 158 degrees F. This feature is particularly important in view of the fact that the limited range wherein the thermostat **40** remains open permits the roller curlers to be maintained at the exact heat desired in the energizing appliance **12** until ready for use. Further, this narrow temperature range serves to speed up the time necessary to reheat a curler after use.

In order to heat the roller curler to its operating temperature the pins **34, 36** on the curler housing **14** are inserted into the openings **50, 52** in the raised portion **54** of the receptacle **12**. An electrical cord **56** having a plug **58** attached at the free end thereof is provided which is to be plugged into a standard wall socket. The cord **56** enters the receptacle base **12** where it is split into two strands **60, 62**. One strand, **60**, is connected to opening **50** in the raised portion **54** of the receptacle **12**. The remaining strand **62** goes to a neon pilot light **64** or any other type of pilot light as may be desired. A further conductor wire **66** is drawn from the pilot light **64** and is connected to opening **52** in the raised portion **54** of the receptacle **12**.

In the event that it is so desired the receptacle **12** can be ganged together so as to form a multiple receptacle base as is shown in FIG. 1.

When the roller curler **14** is plugged into a receptacle **12** the electrical circuit is completed and the pilot light **64** will light thereby showing that the roller curler is being heated. Once the roller curler has reached the desired temperature the thermostat **40** will open thereby breaking the circuit and extinguishing the pilot light **64** which shows the user that the curler has been properly heated and is ready for use.

In use, the hair curler **14** is disposed into engagement with receptacle **54** for approximately 25 seconds at which time the disc thermostat **40** will open the circuit. However, the heat supplied by the Nichrome heating element **32** will take a period of approximately 30 seconds to pass from the center of the ceramic insert **24** and the center of phenolic sleeve **30** 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.

Referring now to the embodiment of the invention illustrated in FIG. 2, reference numeral **110** generally designates this form of the invention which includes a plug in portion generally indicated at **112**, which is adapted to fit into a cigar lighter receptacle in an automobile, boat or airplane, as well as a roller curler generally indicated as **114**.

The roller curler **114** includes an outer housing **116** having cylindrical side walls **118**, a top **120**, and a lower sleeve portion **122**. The plug **124** is disposed around the lower sleeve of the housing **116** and is formed in a way as can be secured to the outer wall **118** of the housing **116**. An inner housing **126** is provided within the housing **116** which may be of a phenolic material. Extending inwardly from the plug **124** is a wire **128** which is connected to a Nichrome wire heating element **132** and a thermostat **140** connected in series with the heating coil **132**. A second wire **136** is connected to the contact **138** on the plug **124** to complete the electrical circuit. An interior ceramic filler **150** of a heat conductive material may be placed within the inner housing **126**.

It is to be understood that ceramic material utilized is of a nature as will hold the heat which is transmitted therethrough for a period 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 clip.

Further, it is to be understood that the construction of the roller curler employed and illustrated in FIG. 1 can be used with equal facility in this embodiment merely by modifying the same so as to accept the plug portion **112**.

Referring now to the embodiment of the invention illustrated in FIG. 3, reference numeral **210** generally designates this form of the invention which includes a roller curler **214** having an outer housing **216** having cylindrical side walls **218**, a top **220** and a recessed lower portion or bore **222**. The recessed portion **222** is formed with cylindrical side walls **224**. The innermost surface **226** of the receptacle **222** is formed of a heat absorbing, heat conductive material and has two extensions **228** and **230** which are embedded in a ceramic heat transferable material **232**. The extensions **228, 230** are of a heat conductive material and are designed to transfer the heat from the surface **226** to the heat transferable material **232** and to the outer housing **216**.

The heat is applied to the inner surface **226** by a standard automobile cigarette lighter **240** which after being heated in the automobile cigarette lighter receptacle is pressed into the recessed lower portion **222** of the hair curler and is held against the surface **226** until the heat transference has taken place, which heat transference requires from 15 to 30 seconds, after which the curler is wound about the hair.

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 an electrically nonconductive housing defining a hair curler, said housing having an open end, an electrically insulative hollow sleeve coextensive with said housing disposed in said housing, an electric heating element disposed between said housing and said sleeve, said sleeve supporting said heating element on its outer surface, a base including contacts for distributing electric current therefrom, means on said base and said housing for detachably electrically interconnecting said housing and said base, said interconnecting means including a plug insert fabricated from a refractory material closing said open end of said housing and being provided with electrical contacts mating with said contacts in said base for electrically connecting said heating element of said curler to a source of electrical power in said base, thermostatic control means disposed within said sleeve and electrically connected in series between said contacts on said plug insert and said heating element for controlling the passage of electrical power to said heating element.

2. A hair curling assembly according to claim **1**, wherein said heating element is spirally wrapped about said sleeve, and an electrically and thermally insulative shield disposed about said heating element between said heating element and said housing, said electrically and thermally insulative shield being coextensive with said sleeve.

3. A hair curling assembly according to claim **1**,

wherein said housing has a hollow phenolic sleeve portion, said plug insert including a sheath of electrically insulative material having a pair of electrical contact pins embedded therein, said sleeve portion surrounding said pins, said pins serving to connect said heating element to a source of electrical power.

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U.S. Cl. X.R.

219—242, 241; 132—33