

HAIRSETTER FOR FLEXIBLE HAIR CURLERS**BACKGROUND OF THE INVENTION****Field of the Invention**

This invention relates to heaters for heating hair curlers. In particular, this invention relates to hairsetters for heating elongated flexible hair curlers.

Description of the Prior Art

Elongated flexible hair curlers have been known for quite some time. Such curlers generally comprise cylindrical bodies made of resilient material such as foam or sponge rubber and have a wire or soft metal core embedded within the body along the axis of the curler. An elongated flexible curler is much longer than an inflexible curler in order to enable it to be bent over on itself to retain a hair tress wound thereon. This avoids the necessity of a clip to hold the hair as is required with inflexible curlers. Elongated flexible curlers also may be bent in a variety of positions after hair is wound thereon and thus may impart a variety of waves to the hair. The metal core enables the curler to be bent and to retain the position it is placed in until it is bent into another position.

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It is well known that heating hair that is wound upon hair curlers, curling irons, etc. will facilitate setting a curl in the hair, whether it is wet or dry. Devices used to heat hair curlers are generally called "hairsetters" and many such prior art devices are known for heating inflexible, rigid hair curlers. An example of such a hairsetter is shown in U.S. patent no. 3,858,029 showing a heating unit having a plurality of heating posts for receiving hair curlers thereon, each hair curler having a longitudinal base surrounded by a heat absorbing wax-filled container. However, no hairsetters are known that are suitable for heating elongated flexible hair curlers.

The known flexible curlers are generally not heated prior to use although heatable flexible curlers are shown in Application 85.27936 (U.S. 671157 of 14 November 1984) published as GB 2166950A.

There is only one known prior art example of a heatable flexible hair curler. U.S. Patent No. 2,074,816 shows an elongated flexible hair curler having an absorbent casing filled with a material such as calcium oxide which when moistened generates heat. The curler disclosed in this patent is incapable of generating heat in use with dry hair.

It is an object of this invention to provide a hairsetter for elongated flexible curlers capable of heating a plurality of such curlers to a predetermined temperature.

According to the present invention, an apparatus for heating a plurality of heatable hair curlers comprises:

a hollow container for receiving a plurality of curlers therein in a substantially longitudinal unbent position, said container having a thermally insulated external surface, as herein defined;

a heat sink core portion within said container for receiving the plurality of curlers adjacent thereto, said core portion having thermally conductive, flat front and back faces each provided with a plurality of parallel, longitudinal channels, each channel adapted to contact a portion of a respective one of the curlers received within said container;

a flat heat source centrally mounted between said front and back faces in heat exchange relationship therewith for heating said faces; and

means for communicating energy to said heat source.

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A preferred embodiment of the invention has a central heat source within said

core portion and means for communicating energy thereto, to heat same; and spacing means adjacent said heat source for spacing said curlers from said heat source and from each other.

In the preferred embodiment the curlers are arranged within the container in rows and the container further comprises tier means therewithin in order to elevate the ends of one row of the curlers above the ends of an adjacent row of curlers.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 shows a perspective view of the exterior of the hairsetter constructed in accordance with the principles of this invention.

Figure 2 shows an expanded perspective view of the interior of the hairsetter shown in Figure 1.

Figure 3 shows a front elevational view, partially cut away, of a portion of the invention.

Figure 4 shows a diagrammatic cross-sectional view of a portion of Figure 3 showing the relationship between the curlers and the heat sinks of the invention; this view is in fact a cross-sectional view taken on the line 4-4 of Figure 3.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to Figure 1 there is shown a perspective view of hairsetter 10 constructed in accordance with the principles of this invention. Hairsetter 10 comprises a generally rectilinear body portion 12 and a hinge cover portion 14. A snap latch 16 is provided to secure cover 14 to body 12. A pivotable handle 18 is provided which also may serve as a stand. A power cord 20 is provided to provide power to the internal components of the hairsetter described below.

The internal components of hairsetter 10 are designed to receive curlers 30 and 32 in a tiered configuration in order to facilitate access to the rear row of curlers.

As best seen in Figure 2, the internal components of hairsetter 10 comprise a core portion 40 having a front frame 41 and rear frame 42 designed to mate therewith. Front frame 41 is provided with nuts 44 and 46 for receiving the same screws that secure handle 18 to hairsetter 10 in order to retain the frame within the body of the hairsetter.

Front frame 41 is provided with a corrugated bracket 50, the indentations 52 of which are sized to

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receive curlers 30, the diameter of which may be, for example, 16 millimeters. A ledge 54 is also provided upon which the bottom end of the curlers 30 may rest. Rear frame 42 is provided with a corrugated bracket 56 the indentations 58 of which are sized to receive curlers

32, the diameter of which may be, for example, 11 millimeters. Rear frame 42 is provided with a ledge 60 which is somewhat higher than ledge 54 in order to have a tiered effect with the rear row of curlers raised higher than the front row.

In between front and rear frames 41 and 42 a heater card 70 is sandwiched between insulator boards 72 and 74, front heat sink 76 and rear heat sink 78.

In the preferred embodiment, heater card 70 is a wire resistance heater receiving power from power line 80 and having a thermostat 82 and fuse 84. Alternatively, other energy sources (such as butane catalytic heat sources, etc.) may be used to provide heat. Thermostat 82 may, for example, have a cutoff in the area of 80°C while fuse 84 is provided as a backup safety feature to blow at a temperature equivalent of approximately 150°C. Insulator boards 72 and 74 may be, for example, Nomex* or Mica boards serving to electrically insulate the heat sinks from the heater card as well as serving to more uniformly distribute the heat.

Heat sinks 76 and 78 may be stamped in the design as shown from a good heat conductive material such as aluminum alloy. Each heat sink is stamped with a plurality of parallel, longitudinal generally rectilinear projections 86 and 88 respectively. Adjacent

*The word "Nomex" is a registered Trade Mark

projections 86 and the longitudinal space 90 therebetween are sized to receive curlers 30 as best seen in Figure 4. Each space 90 is aligned with a corresponding indentation 52. Similarly, projections 88 and the spaces 92 between adjacent projections are sized to receive curlers 32, the spaces 92 being aligned with indentations 58. As best seen in Figure 4, the various dimensions of the projections 86 (and 88) and spaces 90 (and 92) are chosen to insure good thermal transfer between each heat sink and the curlers placed adjacent thereto by assuring that the cylindrical surface of each curler contacts surfaces 94, 96 and 98. It will be understood that projections 86 and 88 are shown for clarity in Figure 2 as having squared corners while in practice it is desirable to round off these corners (as best seen in Figure 3) to relieve stress points.

In operation it will be understood that hairsetter 10 may receive any number of curlers 30 and 32 up to the number of indentations 52 and 58 available. The hairsetter will attain a predetermined temperature (as a function of thermostat 82) and after a certain amount of time thermal equilibrium will be achieved within the interior of the hairsetter so that all curlers 30 and 32 will be heated to the desired temperature.



Where reference is made, in the present description and claims, to a container having a "thermally insulated external surface", it is to be understood merely that the container comprises material contributing thermally insulating properties whereby heat loss at the external surface is inhibited. Any applicable form of container known in the art or within the competence of a person skilled in the art may in fact be utilized, provided that it comprises a material contributing the above-mentioned thermally insulating properties.

Quite generally, moreover, it will be understood by those skilled in the art that numerous modifications and improvements may be made to the preferred embodiment of the invention disclosed herein without departing from the scope thereof.

CLAIMS

1. An apparatus for heating a plurality of heatable hair curlers comprising:

a hollow container for receiving a plurality of curlers therein in a substantially longitudinal unbent position, said container having a thermally insulated external surface, as herein defined;

a heat sink core portion within said container for receiving the plurality of curlers adjacent thereto, said core portion having thermally conductive, flat front and back faces each provided with a plurality of parallel, longitudinal channels, each channel adapted to contact a portion of a respective one of the curlers received within said container;

a flat heat source centrally mounted between said front and back faces in heat exchange relationship therewith for heating said faces; and

means for communicating energy to said heat source.

2. An apparatus according to claim 1 comprising tier means within said container to elevate the ends of predetermined ones of the curlers above the ends of other of the curlers.

3. An apparatus according to claim 1 substantially as described with reference to any Figure or Figures of the accompanying drawings.



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