HAIR CURLER WITH TELESCOPING HAIR CLAMPING STEM

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The invention relates to hair curling devices and particularly to a multiple piece arrangement so formed as to be readily assembled or disassembled so that the hair curling operation is rendered more efficient and the comfort of the user is substantially improved.

A major dissatisfaction with most prior art hair curling devices relates to the discomfort it induces to the wearer. Those familiar with this field will recall that a frequently used hair curling device consists of a cylindrical wire mesh defining numerous openings peripherally of the cylinder. A core element is fixedly positioned within the wire mesh cylinder and is composed of a large number of bristles connected to a central metallic wire or the like, the bristles projecting radially outwardly from the wire to project through the openings defined by the cylindrical wire mesh.

In a frequently used device the bristles project about one-eighth of an inch above the wire mesh. To use this prior art curler an elongated segment of hair is selected and separated from the rest of the wearer's hair. The curler is manually placed at the terminus of the selected segment with its long axis generally transverse of the long axis of the segment. The hair is caused to adhere to the curler by virtue of its disposition in the bristles and therewith the curler is rotated toward the wearer's head causing the segment of hair to roll upon the curler. When the roll is completed and the hair has been rolled, as well as the mesh cylinder is pierced with a pin element, which frequently is composed of plastic and resembles a small pointed tipped rod, this pin element functioning to retain the curler in position immediately adjacent the wearer's head.

While it is true that the above described prior art devices function to produce appropriate curls in the hair it has also been found that there are many disadvantages. A major disadvantage relates to the comfort of the wearer. Experience has shown that the sharp bristles, as a result of normal use, engage the wearer's skin inducing irritation and discomfort. It will be understood by those skilled in this art that the curling operation usually takes from one to three hours depending upon the method of drying employed. The above described discomfort and irritation for such a period of time has resulted in a great deal of complaint by women users. The discomfort is increased if the wearer attempts to lie down or sleep after the curling operation. Additionally, the sharp bristles have been found to break the hair or split the hair ends of many users. This breaking or splitting results in an undesired fuzzy appearance of the wearer after the curling operation is completed. Further, these prior art devices tend to retain dirt and hair segments after use and are very difficult to clean. The unsanitary possibility of transmission of scalp infection from one wearer to another in the commercial beauty shop results.

Another prior art type curling device employs merely a hollow open ended cylinder. This curler may be composed of any material but a frequently used material is cardboard with a plastic film on the surface thereof. The wearer again selects a segment of hair and positions the curler adjacent the terminus thereof as above described. The hair and curler are again rolled to immediate juxtaposition with the wearer's head and then a plurality of clip means such as bifurcated Bobby pins are mounted on the ends of the curler in pressure engagement with the surface of the rolled hair and the inner surface of the cylinder. In this manner the curler and hair is maintained in curled position.

This second mentioned prior art device has also presented disadvantages. In the first instance it is extremely difficult for the home user to self roll the curls. This difficulty is related to the fact that the user's hair is of varying length. As a result it is awkward to position and maintain all strands of hair on the curler and it is further difficult to maintain an even roll. These disadvantages also present themselves in the commercial operation though it is easier to accomplish the rolls when a beauty operator is working on the wearer's head. Note however; that time is an important element in the operator's commercial operation. When each roll is completed the operator must sequentially pick up and position the mentioned plurality of Bobby pins to complete and fix the curls. Patently, this difficulty in rolling and the multiplicity of hand operation in Bobby pin selection and positioning results in an undesired time waste in the commercial hair curling operation.

Turning attention to the herein disclosed arrangement it will subsequently appear that the above described disadvantages of many prior art devices are eliminated and many new advantages offered. For example, the embodiment of the following specification will show that improved curling will result by employing the disclosed device. Specifically, the device is formed and arranged so that the rolled hair is evenly clamped around the curler surface thereby providing a smooth and uniform wave to the hair.

In addition to having the advantages of economy the herein disclosed device is readily cleanable. The disclosed device is of unitary construction in the sense that it is totally operable within itself and does not require that the user employ separated cooperating means such as piercing elements or clip means. In more detail, the disclosed arrangement comprises a cylindrical open ended roller having, in a preferred embodiment, a plurality of holes uniformly distributed around the surface thereof. These portions of the cylinder wall which define the holes are arranged to offer camming means for cooperating structure hereinafter described. Disposed within the cylindrical roller is a stem, said stem being elongated and congruently disposed with respect to the longitudinal axis of the roller. Projecting from and preferably integral with the stem is a plurality of flexible fingers, said fingers being uniformly distributed around the stem. A considerable number of the fingers are arranged to complement in disposition the mentioned holes in the roller while other fingers are arranged to cooperate with the terminal end of the roller. As seen in elevation, each of the fingers is of generally U-shaped construction, the terminating end of one or inner leg of the U being cantilevered connected to the stem, while the terminating end of the other leg of the U is provided with a sharply radially outwardly bent segment which, as will hereinafter appear, will cooperate with the mentioned camming means to offer efficient hair clamping after completion of the roller. An important result of this unitary construction is that the time required to complete the roll is reduced though the time being largely that required to complete the roll as the outer segment of the wearer is substantially reduced. This represents a desirable advantage to all users and especially to the commercial operator.

In addition to the above advantages, the disclosed device offers the user increased comfort, is readily cleanable and thereby provides a high degree of sanitation not found in many prior art devices.

These and other objects of the invention will become apparent in the course of the following description and from an examination of the concerned drawings, wherein: FIGURE 1 is a composite side elevational view, partly...
in section, illustrating the two operating parts of the device.

FIGURE 2 is a side elevational view showing the device in assembled hair clamping position.

FIGURE 3 is a sectional view taken along line 3—3 of FIGURE 2.

FIGURE 4 is a fragmentary composite view illustrating the typical operation of the device, only one finger and cooperating hole being shown for purposes of clarity, and

FIGURE 5 is a perspective view showing the device in its in use condition.

Describing the invention in detail and directing attention to FIGURE 1 it will be seen that the device comprises and open ended generally cylindrical roller or member 2 and a separable finger mounting stem 4. Both the roller 2 and stem 4 are preferably made from a plastic material thereby offering flexibility and wearer comfort and eliminates any problem of corrosion which could result from the liquid and chemicals employed in hair dressing. Those familiar with this art will readily understand that any rust which may form on bobby pins or the like tends to stain the wet hair and produce an undesirable result.

In the preferred embodiment of the invention the cylindrical roller 2 is hollow and is open at both ends as well as being of uniform diameter throughout its length. A plurality of apertures or holes 8, 8 are formed in the wall of the roller and are preferably uniformly distributed throughout the peripheral surface thereof. It will be specifically noted that the wall of the cylinder which defines each of the holes 8 is not parallel to radial lines passing through the long axis of the cylinder, but rather said wall is angled relative to such radial as clearly seen at 10, 10. Additionally, the end 6 of the cylinder 2 is provided with a slight shoulder 12 which also defines a cam surface 14 again in acute angular relation to the long axis of the cylinder.

Turning to the stem 4 it will be seen to comprise a central rod 16 having a plurality of radially projecting and integral bosses 18, 18 formed thereon. Each boss serves as a mounting means for a related U-shaped finger 20, 20. Each finger 20 is so formed and arranged that the radially inner leg of the U is integrally connected at its terminus with the related boss 18. Each finger 20 is therefore further projected in its extent both longitudinally and radially of the stem 16. It should be noted that, in the preferred embodiment, the radially inner leg 22 of each finger 20 is relatively straight in projection, while the radially outer leg 24 of each finger is crimped as at 26 to provide a section 28 biased radially inwardly and is further crimping as at 30 to provide a section 32 bent radially outwardly. For purposes the hereinafter described operation of the device it will be understood that the section 32 may be somewhat pointed at its end and the inner surface of the section 32, here designated 34, will be defined as the finger cam surface.

Attention is now directed to FIGURES 2 and 3 which illustrate the device in unitary assembled arrangement. Here it will be particularly noted that a major number of the fingers 20 are arranged for determined alignment with the holes 8 within the cylinder 2. That is to say each finger has a related operatively complementing hole 8. An exception exists with reference to the fingers 20 mounted adjacent the end 40 of the stem 16. These fingers are arranged to operatively cooperate with the cam surface 14 at the cylinder end 6 and to overlie the shoulder 12 formed thereon. Noting both FIGURES 1 and 3 it will be seen that the fingers 20 are preferably arranged in groups longitudinally of the stem 16 (FIG. 1) and the fingers in each group are spaced around the stem 16 in equal angular relation to each other (FIG. 3).

Directing attention to composite FIGURE 4 it will be understood that herein the operation of the device is illustrated. Note also that this figure is fragmentary in that only a single finger is shown. It will be apparent, however, that all of the fingers function similarly in curler operation. The stem 4 is inserted within the left end of the cylinder 2 inducing the flexible fingers 20 to compress radially inwardly by virtue of pressured engagement with the inner surface of the cylinder. The stem 4 is moved longitudinally of the cylinder 2 until all fingers 20 reach the position shown at 44 in FIGURE 4. Note in this position the section 32 is disposed within hole 8 but the tip thereof is immediately adjacent the outer peripheral surface of the cylinder 2. In this relative position of the arrangement the user selects a portion of the wearer's hair and the rolling operation is undertaken as hereinabove described. When the rolling operation is completed and the curler is located immediately adjacent the wearer's head, the operator manually engages the end 40 of the stem 4 and causes relative motion thereof to the left as seen in the lower views of composite FIGURE 4. As a result of this motion the cam surface 34 of the finger 20 engages the cam surface 10 of the hole 8 causing the segment 28 of the finger 20 to bias sharply upwardly. This sharp upward movement causes the pointed tip of segment 32 to pierce the rolled hair without important disturbance thereof and allowing same to overlie the adjacent rolled hair as is illustrated at 46 in FIGURE 4. Further leftward motion of the stem 4 brings the base or leg connecting segment 48 of the U-shaped finger 20 into registry with hole 8 whereupon the flexible biasing action of segment 28 urge the segment 48 into the hole 8. This accommodates the normal flexible radially inward biasing action of the segment 28 to move into clamping relation with the outer surface of the cylinder 2. This is illustrated at 50 in FIGURE 4.

FIGURE 5 is a perspective view of the curling device in use condition. The numeral 52 is illustrative of appropriately rolled hair on the cylinder 2. It will be noted that all of the fingers 20 are in clamping relation with the hair 52 and that said fingers are uniformly distributed around the peripheral surface. This results in an even clamping of the hair and contributes to an improved final curl.

It will also be apparent that the rolling and clamping or final positioning of the device is easily and efficiently accomplished. Further this entire operation is completed without the necessity of the operator removing the hands from the roll thus eliminating extraneous motion to grasp locking devices such as bobby pins as well as reducing the possibility of accidental roll disturbance.

It will also now be understood that the disclosed device clearly meets all sanitation requirements and will not result in broken or split end hair. Improved wearer comfort is also a feature in that the sharp pointed bristles of prior art devices are not employed. Additionally the device may readily be manufactured from somewhat pliable plastic material thus further lending to user comfort.

The invention as shown and described is by way of illustration and not limitation and may be subject to modification without departing from the spirit thereof or the scope of the appended claims.

What is claimed is:

1. In a hair curling device an open ended cylindrical member, the entire outer peripheral surface of the member being adapted to receive rolled hair strands, a plurality of openings in predetermined disposition around and longitudinally spaced from each other along the peripheral surface of the member, a stem element telescopically received within the member and movable relative thereto both rotatively and longitudinally, relative longitudinal movement between the element and the member being operative to move the device from open to closed position thereof.
a plurality of generally U-shaped flexible fingers in 
predetermined disposition both around and longi-
tudinally spaced along the stem element and arranged 
to extend generally axially and radially of the stem 
element,
each of said fingers having the terminus of the radially 
inner leg of the U cantilever connected to the stem 
element, 
the radially outer leg of each U-shaped finger having 
a terminal cam surface thereon, the outer leg of each 
finger being arranged to pressure engage the inner 
peripheral surface of the member in open position of 
the device, 
said fingers being alignable with related openings, 
whereby upon determined relative longitudinal motion 
between the stem element and said member 
the terminal cam surfaces edge engage the related open-
ings to accommodate outward extension of the outer 
leg of the related finger through the related opening 
into clamping association with the outer surface of 
said member whereby said outer legs provide a plu-
rality of clamping means for the hair strands rolled 
on said member in approximate tandem arrange-
ment along the entire longitudinal peripheral length 
of said member.

2. In a device to facilitate the curling of hair, an axially 
elongated open-ended hollow member adapted to roll 
hair strands over substantially the entire outer peripheral 
surface thereof, said member having a plurality of holes 
formed in the surface thereof and extending therethrough, 
said holes being distributed both radially and longitu-
dinally over said peripheral surface, a stem element tele-
scopically inserted into the member via an open end 
thereof, a plurality of flexible fingers each having an 
integral cantilever connection at one end thereof to the 
element, said fingers being distributed radially around 
and longitudinally along the element, said fingers includ-
ing outer clamping segments operative to pressure engage 
the inner surface of the member in open position of the 
device, radially directed cam surfaces on the outer termini 
of the segments, certain of said segments being alignable 
with said holes, other of said segments being arranged 
for operative cooperation with an edge terminus of the 
member, whereby, upon determined relative longitudinal 
motion between the element and the member said certain 
segments edge engage said holes and are cam biased to 
move through said holes and said other segments engage 
the edge terminus of the member and are cam biased 
radially outwardly of the peripheral outer surface of the 
member, all of said segments being urged by said motion 
into clamping engagement with the outer surface of the 
member to secure thereto hair strands rolled thereon, 
said clamping segments in the closed position of the de-
vice being disposed radially around and longitudinally 
along the outer peripheral surface of the member.

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