United States Patent

[11] 3,590,829

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Continuation-in-part of application Ser. No. 689,610, Dec. 11, 1967, now abandoned.

[54] **SELF WINDING CURLER**
9 Claims, 6 Drawing Figs.

[52] **U.S. Cl.** **132/43**
[51] **Int. Cl.** **A45d 2/18**
[50] **Field of Search** 132/43, 40, 41, 42, 43.1, 7, 36, 38, 36.2, 39

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ABSTRACT: A hair roller with which the user's hair can be wound in a bundle having the strands therein held in windings of varying pitch to give a corresponding varying degree of tension to the hair. Thus the bundle of hair is so controlled that when it is set it possesses a larger curl near the root end and a smaller tighter curl near the tip end giving better overall body to the hair and optimum control over the shaping of the critical tip end. The hair roller comprising a wrapping strip susceptible of being wound upon itself so as to facilitate the winding of the hair therewith into a bundle of hair for setting purposes. The wrapping strip is used in conjunction with a core member of generally cylindrical shape and provided for starting the first winding of the hair at a predetermined diameter. Projections are included on the wrapping strip to space each convolution into which the hair is wound from the others at windings of increasing pitch to impart varying tension to the hair and also allow axial entry of air to the rolled bundle for rapid and more complete drying of the hair. Also, access for radial entry of air to the bundle is provided for by means of suitable openings formed in both the core and wrapping strip.

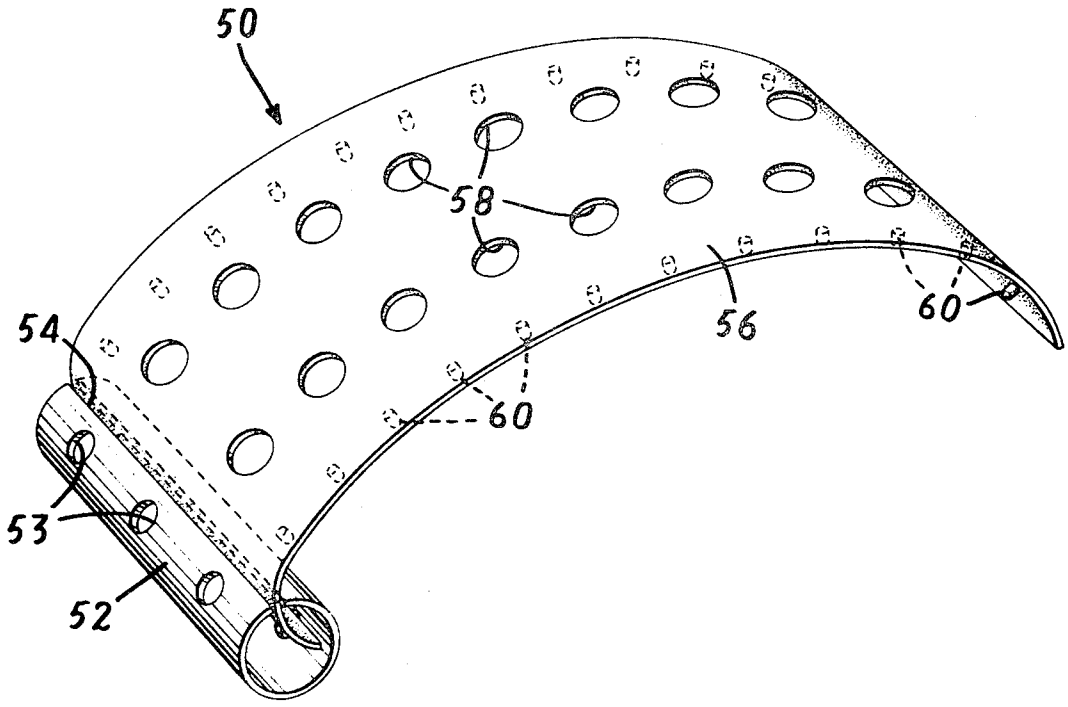
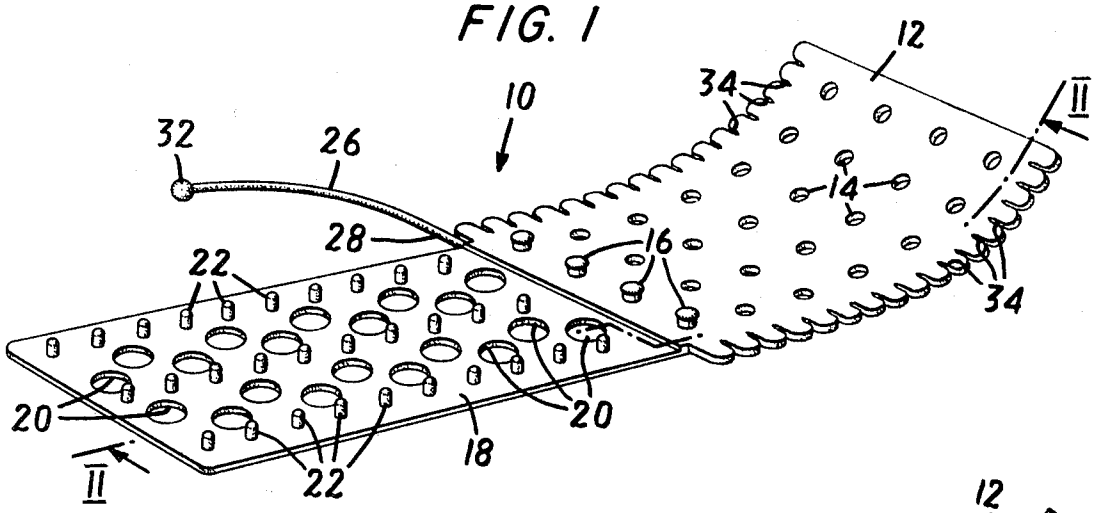


FIG. 1



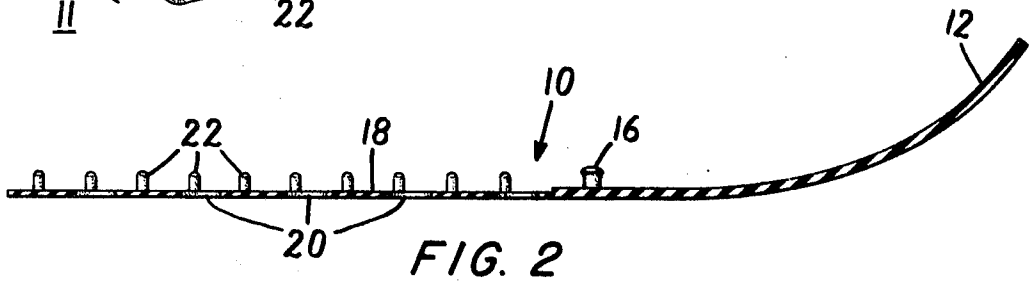


FIG. 2

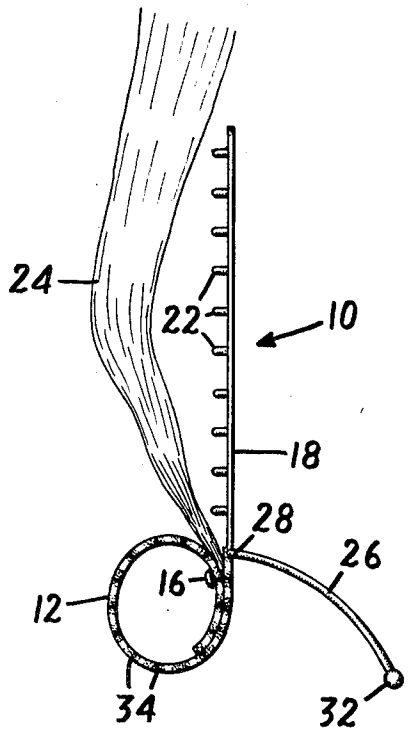
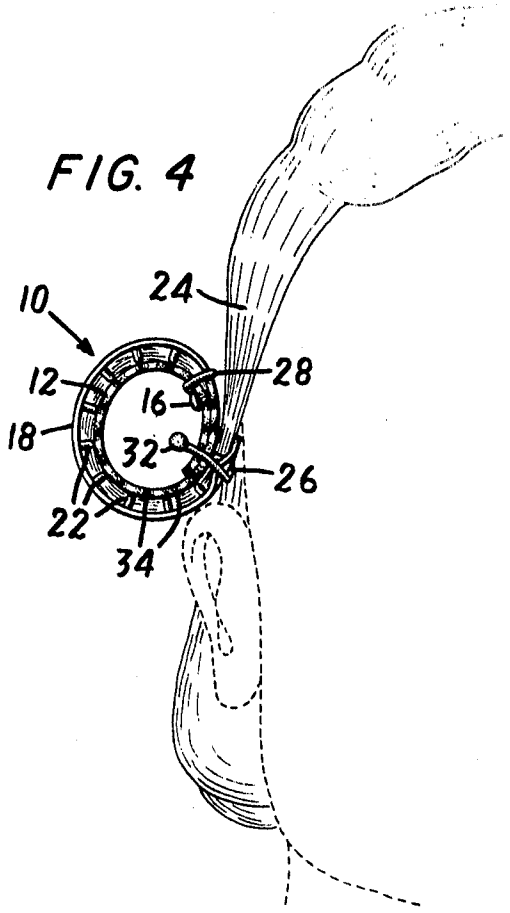


FIG. 3

FIG. 4



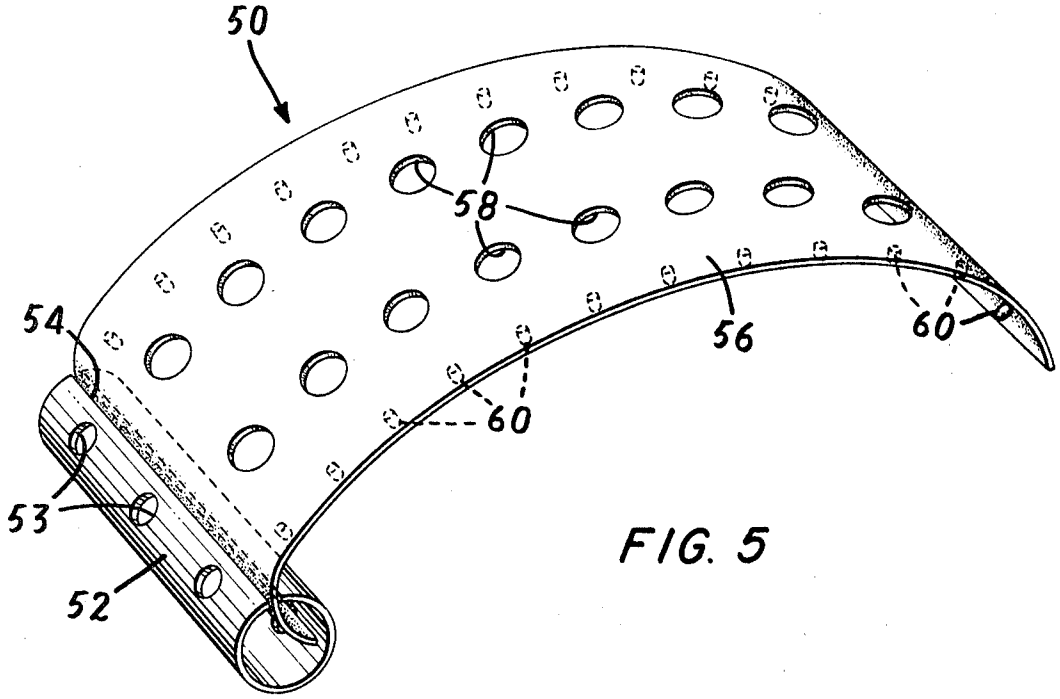


FIG. 5

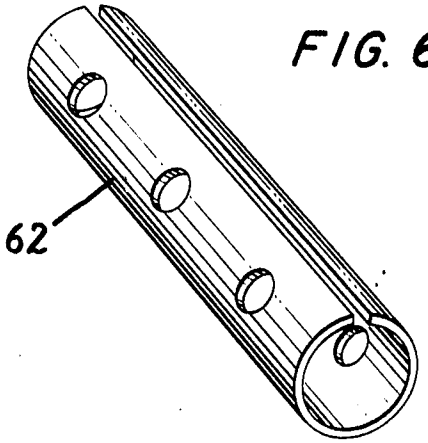


FIG. 6

SELF WINDING CURLER

CROSS-REFERENCES TO RELATED APPLICATIONS

This application is a continuation-in-part of presently pending application Ser. No. 689,610 now abandoned filed Dec. 11, 1967.

BACKGROUND OF THE INVENTION

The present invention relates to an improved hair roller and particularly one with which hair curl size can be controlled to give it a varying pitch and corresponding tension between the root end and tip end. The hair roller is easily adjusted for producing different curl effects and also possesses certain constructional attributes designed to accelerate the drying of the rolled bundle of hair, thereby reducing the amount of time required to style the user's hair.

In styling women's hair and in particular in applying a set thereto, it is customary to roll dampened hair in bundles and dry it in the rolled condition in order to impart a curl to the hair. Depending upon the desired style or setting to be created, curls of different sizes and of varying diameters must be formed. After the hair is dried and the rollers removed, the stylist or user works with the curled hair to produce the intended style and effect. The success of the styling depends to a large measure on the manner in which the tip ends of the hair have been wound both as to the pitch of winding and tension in the tip end as compared with the hair near the root end. For example, in most instances, the tip end winding or curl should be of small pitch giving a tight more tense curl. On the other hand, the hair near the root end should have a large loose curl. In this manner the hair hangs better and the critical tip end better and longer holds its set. For example, if effecting a "Page Boy" style the hair should be set so that the tip ends of the hair should be open and loose. With prior art hair roller devices, it is very difficult to produce the foregoing condition in the hair. This is because with prior art rollers regardless of the roller diameter it is impossible to provide a marked difference between the diameter of the hair winding immediate the roller body which is the tip ends of the hair and the diameter of the hair at the outside of the wound bundle which is the root end of the hair. Thus the full length of hair from root to tip end is wound at generally uniform pitch and consequently when the hair is dried, substantially uniform tension is produced therein. Uniform tension in the hair causes it to lay curled up higher at the side of the head than the style requires and consequently styling procedures to set the hair tip ends down at the proper level must be resorted to which procedures have the effect of reducing the tightness of curl at the tip end. If it is sought to increase the tightness of curl at the tip end by reducing the roller diameter this only compounds the problem. On the other hand use of larger diameter rollers contribute nothing either since while their use is compatible with the forming of a large pitch of curl at the root end of the hair, the same pitch of curl is produced at the tip end and lacks the necessary tightness or tension to hold the tip end styled for a very long period of time.

Also in using prior art roller devices, since there is no comparative differential in the size of hair winding first and last wound thereon, the dampened hair lays on the roller in a dense bundle making it difficult for air to penetrate the mass to dry it evenly and completely in a given period of time.

SUMMARY OF THE INVENTION

The present invention is concerned with an improved form of hair roller which comprises a wrapping sheet on which the user's hair can be received and wound in a number of windings. The wrapping sheet may be used in conjunction with a core member shaped into a generally cylindrical body of any one of a number of predetermined diameters. Both the core and the wrapping strip are liberally provided with openings extending therethrough so as to provide air access openings in

the roller when it is used for its intended purpose. According to the invention, the hair roller is used by gathering the hair to be curled into a bundle and receiving the tip end of the bundle on the core. The stylist or home user then proceeds to wind the bundle intermediate the core and the wrapping strip in a number of successive convolutions to roll the hair to the extent necessary for the intended style of the hair to be effected, an important feature of the present invention being that the wrapping strip is provided on one side thereof with projections outstanding from the surface therefrom which function to engage against the roller core and any already convolute winding in which the wrapping strip has been formed to space each convolution of the wrapping strip from the others. In this manner the successive windings of the hair are wound at an increasing pitch from the tip end toward the root end and are held out of contact with the others providing a space between the successive windings to permit axial as well as radial entry of air to promote drying of the hair.

According to the invention, the roller may be made as a unitary device comprised of a relatively flat section rollable into the form of a cylindrical core and having fastening means for maintaining it in that condition, and a wrapping strip joined to the flat section. In the alternative, the core member can be provided as a separate preformed cylindrical body with a slot formed along the length thereof suitable for receiving therein an end portion of the wrapping strip. The wrapping strip used in conjunction with the core can be either a strip member formed from a resilient material thereby having certain self-winding properties, or it may have incorporated therein separate winding means, or the wrapping strip may be a normally relatively flat component, employing no self or separate winding means therein at all. In any event, and in each constructional form thereof, the wrapping strip is provided with projecting means in the same manner above described.

The invention accordingly comprises the features of construction, combination of elements, and arrangements of parts which will be exemplified in the construction hereinafter set forth and the scope of the invention will be indicated in the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

A fuller understanding of the nature and objects of the invention will be had from the following detailed description taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a perspective view of a hair roller constructed in accordance with the principles of the present invention, the hair roller structure having a segment or component part thereof which can be formed into a cylindrical core and a segment comprising a wrapping sheet with which the hair is wound, the wrapping sheet segment being connected with the core segment;

FIG. 2 is a sectional view of the hair roller structure shown in FIG. 1 as taken along the line II–II therein;

FIG. 3 is an edge view of the roller shown in FIGS. 1 and 2 with the core forming segment thereof having been formed into a cylinder and illustrates the manner in which the tip end of a bundle of hair is laid against the core as a first step in rolling the hair with the roller;

FIG. 4 shows the roller in FIG. 3 after the same has been wound in a series of convolutions with the respective convolutions formed with the wrapping strip and the hair sandwiched therebetween spaced each from the others to thereby provide substantial axial as well as radial entry of air to the rolled bundle hair for accelerating the time period required for drying the bundle;

FIG. 5 is a perspective view of an alternate form of construction of the hair roller wherein the core and wrapping strip components of the hair roller are made as separate elements, the wrapping strip being made from a resilient material and possessing self-winding characteristics; FIG.

FIG. 6 is a perspective view of cylindrical core element used in the roller construction shown in FIG. 5 but having a diameter larger than the core element shown in FIG. 5 and being intended for interchangeable use with the same wrapper sheet shown a in FIG. 5 when larger diameter curl at the tip end of the hair is to be produced than can be made with the FIG. 5 roller.

Throughout the following description like reference numerals are used to denote like parts in the drawings.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The hair roller of the present invention is of relatively simple but yet effective construction, easily and inexpensively can be manufactured and is adapted readily for use both in the professional hair styling establishment and the home. It can be employed by the stylist or home user with facility since its construction is such as to allow readily for rolling the hair rapidly and accurately in the desired curl forms. Moreover, its use makes possible a high degree of control of curl size particularly at the hair adjacent the tip end. Further it produces in use a well defined overall curl effect and eliminates droop at the curl ends, giving good body to the curl. The hair roller can be made in various embodiments and with the modifications in construction as will appear.

The form of hair roller **10** shown in FIGS. 1—4 is an elongated normally essentially flat structure which desirably is made as a one-piece construction and is provided at one end with a relatively wide, generally flat segment **12** which can be shaped in the form of a cylinder or core by rolling the segment upon itself. Suitable locking means in the form of interengaging apertures **14** and bosses **16** are embodied in segment **12** and provide that when so interengaged, the segment **12** will remain in the rolled condition shown in FIG. 3. As can be discerned, the cylindrical core into which segment **12** is formed can be of varied diameter depending on which transversely arranged row of apertures is selected for engagement with the bosses **16**. As will be understood from further description given herein, the diameter of the cylindrical core is varied depending upon the particular tightness of curl to be given the tip end of the hair. However, the use of the core to provide an initial winding surface on which the first convolution of hair (the tip end) can be wound is itself an essential requirement. The apertures **14** also provide ventilation openings for admitting air readily to the hair wound with the roller for the purpose of speeding up the drying of the hair. The hair roller **10** also includes as another part thereof, a wrapping strip segment **18** which can be made of somewhat lesser thickness than the segment **12** and which also is provided with a number of ventilation apertures as at **20**. Moreover, the wrapping strip segment **18** is provided with a number of rows of projections **22** which function when the wrapping strip is wound about the cylindrical core with hair sandwiched between it and the core to space each convolution of hair from the others to thereby provide as shown in FIG. 4 positive an opening between the successive convolutions for admission of an axial flow of air for drying the hair. However, of more importance the projections **22** function to produce a larger comparative curl diameter at the root end of the hair than at the tip end thereby allowing for the tip end to assume a tightness of curl whereas the hair near the root end is relatively untensed giving the curl good body without any sign of droopiness.

In the form of hair roller shown in FIGS. 1—4 both the segment **12** and the wrapping strip **18** are made from a material which is susceptible of being wound into cylindrical or convolute form. It is also possible for both segment **12** and wrapping strip **18** to be made of a material that would give them certain self-winding properties. In using the hair roller **10**, the core segment **12** first is formed or shaped into a cylindrical core as shown in FIG. 3, the diameter of the cylinder being one selected in accordance with the particular tightness of curl and tension to be imparted to the tip end of the hair. The segment **12** is then secured in shaped condition by engaging the bosses **16** in the apertures **14** which are associated with the desired core diameter. A bundle **24** or group of strands of hair desirably first dampened in the usual manner is then gathered together in the manner shown in FIG. 3 and the tip end thereof received on the cylindrical core with the tips of the hair being positioned adjacent the junction of the wrapping strip **18** with the core. The user then proceeds to wind the hair into a series of convolute windings by rotating the core windingly upwardly against the wrapping strip producing the wound structure shown in FIG. 4 with the successive windings of the hair being spaced one from the others by reason of the engagement of the projections **22** with the surface of the core and the hair pressed thereagainst in the manner shown in FIG. 4. Thus, it will be understood that the first complete winding of the core holds the critical tip end of the hair at the desired curl diameter. Successive windings of both hair and roller of course will occur at an increasing pitch because of the presence of the wrapping sheet of the projections **22**. The final winding of the root end of the hair as shown in FIG. 4 will have a much larger comparative diameter than the tip end or core winding of the hair to give little or no tension to the root end hair. The rolled up bundle of hair may then be secured against unrolling by utilizing a hair pin or like clamping element to hold it as shown in FIG. 4. Clamping means also can be provided on the hair roller itself. For example, an elastic cord **26** can then be secured to one side of the roller body as at **28**. The cord **26** can then be stretched through the center of the core and back across the outside of the rolled structure to allow the enlarged head **32** at the end of the cord to be engaged or secured in one of the lateral slits **34** formed along the margins of segment **12**. Thus, the cord **26** functions as an elastic clamping means. Because of the spacing between successive convolutions of hair provided by projections **22**, drying air is better able to gain access axially to the mass of hair and more rapid drying is achieved than is possible when using prior art roller devices. After the hair is dry, the clamping means is released and the rolled bundle of hair is unwound. The curls formed in the bundle are then styled by the hairstylist according to the intended hair styling effect to be produced.

In accordance with the present invention the hair roller may be provided with the core member and wrapping sheet parts thereof formed as separate elements in the manner shown in FIG. 5. In this form, the hair roller **50** includes a core **52** comprised of an elongated cylindrical shaped body preferably made of a resilient material such as plastic and provided with an elongated slot as at **54** wherein can be received an end portion of the separate resilient wrapping sheet **56**. In the manner of the hair roller device **10** described earlier, the wrapping sheet **56** is provided with suitable ventilation apertures **58** and projections **60** adjacent the side margin thereof, the projections being located at the underside of the wrapping sheet in FIG. 5. Wrapping sheet **58** can be formed of a resilient material possessing self-winding properties, or it can have means embodied therein which impart self-winding properties as for example spring steel strips desirably located along the margins of the sheet. Also the sheet **58** can be an ordinary normally flat sheet having no self-winding properties at all. Core component **52** also is provided with ventilation apertures **53**. In use, the hair roller **50** is used in the same manner as previously described for hair roller **10** particularly with respect to the function of the projections **60** for spacing the successive windings of the hair to accelerate drying. It will be understood of course that core member **52** most usually will be provided with a predetermined diameter. Thus, if it is desired to alter the size of the curl and particularly the tip end curl diameter which can be made with the hair roller **50** a different sized core member such as the core **62** shown in FIG. 6 is used for producing a larger curl. Thus, by exchanging core members, various size curls can be produced with the same wrapping sheet.

It will be seen then that the hair roller device of the present invention is a notable advance over the construction of such devices as are known in the art particularly in that it makes it possible to more accurately control curl size and more adequately produces proper tip end curl diameter and tension by reason of the utilization of a core member in cooperation with a wrapping sheet as previously described. The roller of the present invention is particularly useful for making a pickup curl in the user's hair in that the user need merely spray the hair and then roll same on the roller device. Because of the spacing of the successive windings provided by the roller, the hair will dry in a very short time. But more important, the pickup curl will have good body since the tip end of the hair can be wound with the necessary tightness without producing any undue tension of the hair at the root end which would tend to affect the manner in which the entire curl hangs.

It will thus be seen that the objects set forth above among those made apparent from the foregoing description, are efficiently attained and, since certain changes in the roller device construction set forth above, may be made without departing from its scope, it is intended that all matter contained in the above description shall be interpreted as illustrative and not in a limiting sense.

What I claim is:

1. In a hair roller,

a core segment adaptable for providing a substantially cylindrical winding surface of predetermined diameter for receiving the tip ends of strands of hair in a first convolute winding of said strands at a predetermined diameter, and

an elongated strip having a relatively expansive surface against which the remaining lengths of said hair strands may be received, said strip being susceptible of being wound in a succession of convolutions and being connected with said core for winding therewith to roll the remaining lengths of said hair strands in corresponding and successive convolutions toward the root ends thereof, said elongated strip further having projections outstanding from the surface thereof for spacing each convolution into which it is wound from the others and therewith providing that the diameter of the hair convolution nearest the root ends is much larger comparatively than the diameter of the first convolute winding of hair received on said core segment.

2. The hair roller of claim 1, wherein said core segment is an essentially flat strip connected with said elongated strip but capable of being wound into a cylindrical shape.

3. The hair roller of claim 2, wherein said flat strip further includes securing means with which it can be secured in said cylindrical shape.

4. The hair roller of claim 3, wherein said securing means includes interengaging bosses carried on said flat strip and a plurality of apertures formed in said flat strip, said apertures being arranged such that said core segment can be secured in one of a number of different diameters by receiving said bosses in correspondingly different ones of said apertures.

5. The hair roller of claim 4, wherein said elongated strip and said flat strip are made integral.

6. The hair roller of claim 5, wherein said elongated strip and said flat strip are each provided with a plurality of apertures constituting ventilation openings for said device.

7. The hair roller of claim 5 further comprising an elastic cord connected to said flat strip adjacent its juncture with said elongated strip and having sufficient length to be passed through said core and back across said elongated strip to hold the latter against said core when wound in convolutions, said flat strip having slits in the margins thereof for receiving an enlarged end of said cord.

8. The hair roller of claim 1, wherein said core segment is a shaped cylinder of predetermined diameter, said cylinder having a longitudinal slot therein, an end portion of said elongated strip being receivable in said slot.

9. The hair roller of claim 8, wherein both said elongated strip and said cylinder are provided with a plurality of apertures constituting ventilation openings for said device.