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 [21] Appl. No. **81,269**
 [22] Filed **Oct. 16, 1970**
 [45] Patented **Nov. 30, 1971**
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[56]

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[54] **HAIR CURLERS**
8 Claims, 5 Drawing Figs.

[52] U.S. Cl. 132/40
 [51] Int. Cl. A45d 2/00
 [50] Field of Search. 132/40,
 38-39, 41, 43

ABSTRACT: A hair curler is disclosed having a cylindrical body member and a plurality of hair-gripping elements projecting from the outer surface of the body member. Each hair-gripping element includes generally two outer arms and an inner loop disposed in spaced relation to each other and between which loops strands of hair are held in a wound condition about the curler.

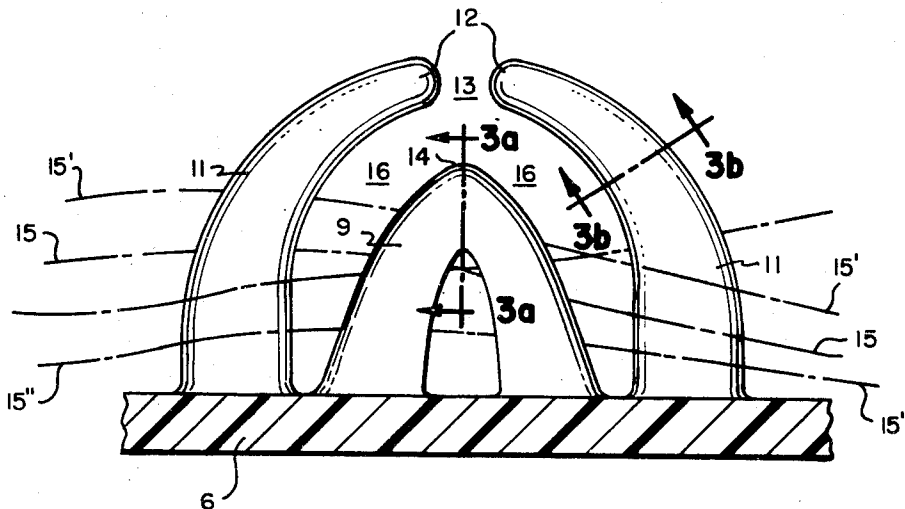


FIG. 1

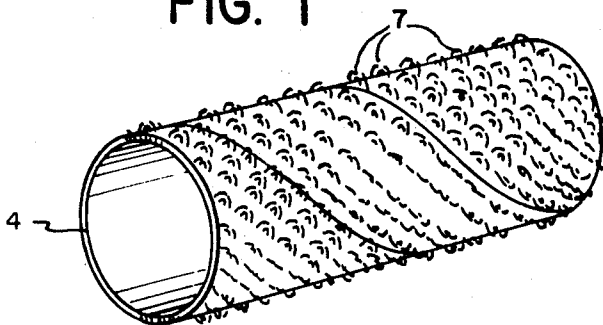


FIG. 2

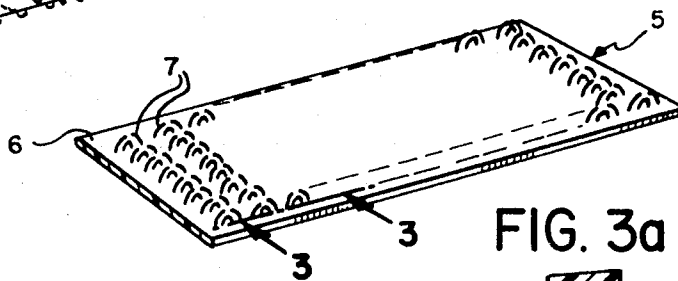


FIG. 3a

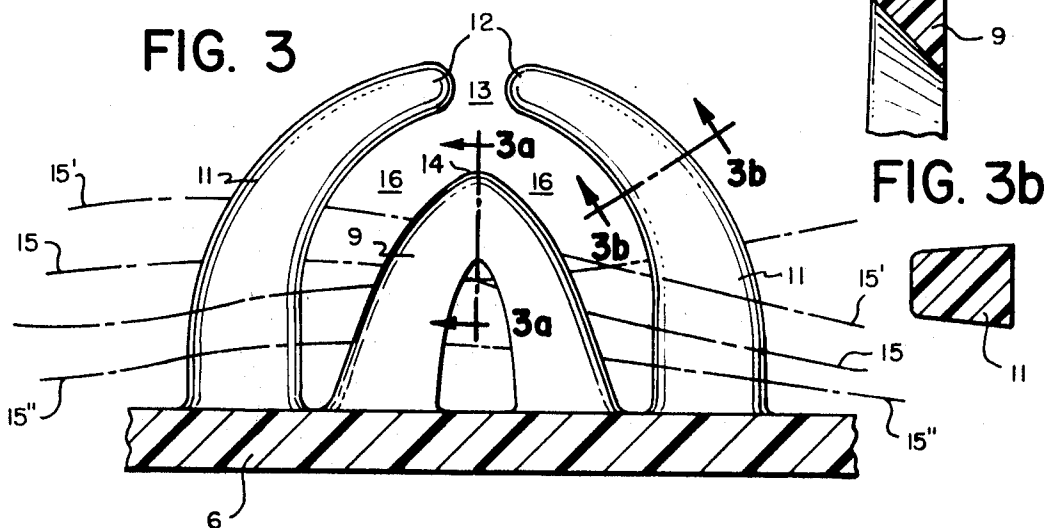
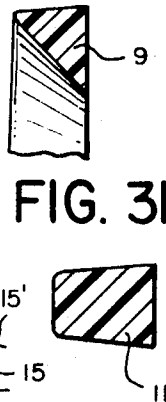


FIG. 3b



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HAIR CURLERS

BACKGROUND OF THE INVENTION

Hair curlers commonly in use generally include a cylindrical body member about which strands of hair are adapted to be wound and a means for holding the hair in a woundup condition about the body member until the proper set has been imparted to the hair.

In several known constructions, the means for holding the hair in a woundup condition comprises a plurality of hair-gripping elements projecting radially outward from the outer surface of the body member. In the constructions referred to, these hair-gripping elements are commonly defined by the pile threads of a synthetic woven pile material which is suitably secured to the outer surface of the body member. The raised pile threads defining the hair-gripping elements are shaped to engage and hook the strands of hair as they are wound about the curler. As one example, the raised pile threads may have the shape of a classical J-hook. As another example, raised pile threads having ball or spherical-shaped terminal portions have been used for the purpose of hooking strands of hair wound about the curler thereby retaining them in place. And as a further example, each gripping element includes a pair of raised pile threads each of which has a medially bowed partial elliptical shape for hooking the wound strands of hair.

Hair curlers of the type described above are quite convenient to use as the hair is automatically locked in place about the curler as it is being wound, and, once wound about the curler, the curler itself may be held in place simply by lightly pressing the hair carrying curler against the scalp. This causes the hair-gripping elements to hook onto loose strands of hair not wound about the curler or the root portions of wound hair thereby retaining the curler and hair wound thereabout firmly in place.

Hair curlers of this type, however, possess one serious drawback which has limited their widespread use. This drawback relates to the unwinding of the hair from the curler. As the hair is unwound there is a tendency for the individual strands to become snarled or tangle or catch on the hooklike hair-gripping elements thus causing, in many cases, at least partial loss of hair set or a kinky curl as well as discomfort to the user.

The present invention provides a hair curler of the general type described above in which the hair-gripping elements are specially constructed to release the hair upon unwinding without snarling or tangling or catching on the hair-gripping elements.

SUMMARY OF THE INVENTION

In accordance with the teachings of the present invention, an improvement in hair-gripping elements for a hair curler of the type which is equipped with a plurality of individual hair-gripping elements projecting from the outer surface of a cylindrical body member is provided. In construction, the improved hair-gripping elements each include a pair of curved arms the terminal ends of which are spaced apart by a gap. The improved hair-gripping element further includes an inner loop which is positioned generally within the outer arms in spaced relation thereto.

With this arrangement strands of hair extend longitudinally through the space defined between the spaced outer arms and inner loops in an entrapped condition such that the strands of hair are held in a wound condition about the curler. The gap between the terminal ends of the outer arms facilitates entry of the hair strands into the space between the outer arms and the inner loops as the hair strands are wound about the curler. The wound strands of hair are smoothly and conveniently unwound simply by rotationally pulling the curler away from the head of the user thus causing the entrapped wound strands to slide longitudinally out of their place of entrapment between the inner loops and outer arms.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the hair curler of this invention.

FIG. 2 is a perspective view of the molded plastic sheet which carries the improved hair-gripping elements of the hair curler of this invention.

FIG. 3 is a side elevation view of one of the hair-gripping elements taken along the lines 3—3 of FIG. 2.

FIG. 3a is a cross-sectional view taken along the lines 3a—3a of FIG. 3.

FIG. 3b is a cross-sectional view taken along the lines 3b—3b of FIG. 3.

DETAILED DESCRIPTION OF THE DRAWINGS

As shown in FIGS. 1 and 2, the hair curler of the present invention includes a cylindrical body member 4 which is formed from the molded plastic sheet 5 shown in FIG. 2. The molded plastic sheet in strip form is wrapped spirally to form the cylindrical body member and the edges of the sheet are secured by any suitable means, such as by adhesively affixing or ultrasonically welding the edges together. The sheet 5 includes a flexible base sheet 6 and a plurality of flexible resilient hair-gripping elements 7 upstanding from one surface of the base sheet 6. In the presently preferred embodiment of the invention, the base sheet 6 and hair-gripping elements 7 are made of plastic material molded as an integral unit. A suitable molding apparatus and method which can be utilized to produce the molded plastic sheet 5 is described in copending and commonly assigned U.S. Pat. application Ser. No. 824,597 entitled "Production of a Continuous Molded Plastic Strip" and filed May 14, 1969.

The structure of the improved hair-gripping elements is shown most clearly in FIG. 3, 3a and 3b wherein it will be seen that each hair-gripping element comprises generally two outer arm sections having a generally trapezoidal cross-sectional configuration which is indicated generally by reference number 11 and an inner loop section 9 having a generally triangular cross-sectional configuration and situated generally within the outer arms section 11 in spaced relationship thereto. As shown, the outer arms 11 are spaced apart at their free terminal ends 12 by gap 13. The gap 13 facilitates entry of the hair strands, as for example strands 15 indicated by dash-dot lines in FIG. 3, into the space 16 between the inner loop and the outer arms 11 respectively as these strands are wound about the curler body. The width of the gap 13 should be small enough so that the space 16 is a substantially closed one but large enough to permit substantially free access of a cluster or bunch of hair strands into space 16 at one time. In the construction shown, the gap 13 is located directly above the crest 14 of the inner loop 9 and each arm 11 has a cubic curvature. The terminal ends 12 are rounded as shown so that the passage of hair strands 15 into the space 16 between the inner loop and the outer arms is not impeded.

As hair is wound about the curler, the individual strands 15 are received into the space 16 between the inner loop 9 and outer arms 11 through gap 13 between terminal ends 12 of arms 11. Some strands may also enter the space 16 sideways through the space 16 in a looping fashion over the inner loop 9; but most will enter through the gap 13 if it is properly dimensioned as above described. Thus, as shown in FIG. 3, hair strands may extend through the space 16 on only one side of the inner loop 9, as for example hair strand 15', or they may extend through the space 16 on one side of the inner loop 9 around the inner loop 9 and then through the space 16 on the other side of the inner loop, as for example strand 15''. As the hair strands accumulate in the space 16 during winding, the arms 11 flex slightly outward with respect to the inner loop 9 to accommodate the strands; and as the arms are resilient the back pressure created by the tendency of the arms to return to their initial position, causes the strands of hair to become entrapped in the space 16.

After winding, the curler may be secured firmly in place on the head of the user simply by pressing it lightly into the scalp. This will cause the terminal ends 12 of arms 11 to engage and hook onto the wound-up strands of hair near their roots or any

loose unwound strands thereby holding the curler and hair wound thereon in place.

Unwinding of the hair from the curler is accomplished simply by grasping the ends of the curler body with one's fingers and pulling the curler rotationally away from the head. This movement causes the entrapped strands of hair to slide longitudinally out of the space 16 between the inner loops and outer arms of the hair gripping elements.

With the hair curler construction described above, the hair is released smoothly and without noticeably pulling of the hair strands which might cause discomfort to the user. This is due to the fact that the individual strands of hair are entrapped and confined by the hair-gripping elements of the present invention rather than being hooked by or catching on the hair-gripping elements as is the case with the hair-gripping elements of prior art hair curlers of the general type disclosed herein.

The entrapment of the strands by the hair curlers of the present invention renders them extremely convenient to use and comfortable during both application and removal. It also increases the probability of obtaining a good hair set as the avoidance of any snagging or catching during use substantially eliminates the danger of resulting kinky or ragged curls. Additionally, the hair-gripping elements, hold the hair firmly on the hair curler, thereby preventing slipping as the hair is initially wound about the curler.

In addition to the above advantages, the hair curler of this invention is simple in construction, durable, and inexpensive to manufacture all of which enhances its overall utility.

I claim:

1. In a hair curler having a cylindrical body member and a plurality of hair-gripping elements projecting from the outer surface of the body member for holding strands of hair in a wound condition about the curler, the improvement wherein each hair-gripping element comprises:

a. Outer arms and an inner loop disposed generally within the outer arms in spaced relation thereto to thereby define a space between the inner loop and said outer arms through which said strands extend, said outer arms being separated at their terminal ends by a gap facilitating entry of strands of hair into the space defined between the inner loop and outer arms.

2. The improvement according to claim 1 wherein the outer arms and the inner loop are made of a flexible resilient material.

3. The improvement according to claim 2 wherein the outer arms and the inner loop are made of a plastic material.

4. The improvement according to claim 3 wherein the outer arms and inner loop upstand from and are formed integral with a flexible base sheet of plastic material.

5. The improvement according to claim 1 wherein said gap between said outer arms is located directly above the crest of the inner loop.

6. The improvement according to claim 5 wherein each curved arm has a cubic curvature.

7. The improvement according to claim 6 wherein each arm has a generally trapezoidal cross-sectional configuration.

8. The improvement according to claim 7 wherein the inner loop has a generally triangular cross-sectional configuration.

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