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PERMANENT WAVE ROD

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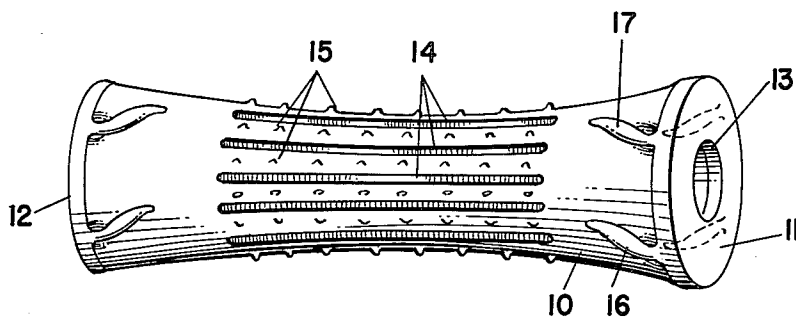


FIG. 1.

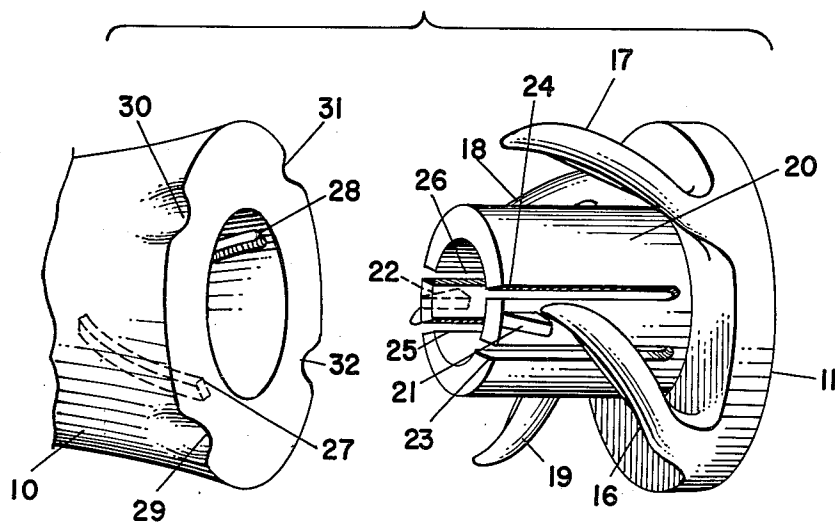


FIG. 2.

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1

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PERMANENT WAVE ROD

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1 Claim. (Cl. 132-40)

This invention relates generally to hair curlers and more particularly to an improved permanent wave rod for holding a person's hair during treatment and setting with permanent waving fluid.

A conventional permanent wave rod comprises a hollow core having a generally cylindrical exterior surface with a reduced diameter in its central portion. There are generally provided openings communicating with the hollow interior of the core to pass permanent waving fluid received in one end of the core to hair wrapped about the core. In addition, a cross piece, either in the form of a rubber band, or even a piece of metal, is provided at one end and positioned to pass transversely across the hair after the hair has been wrapped about the core to hold the core in place.

While the above type of rod has been fairly satisfactory, some trouble has been experienced with the cross piece, either in the form of a rubber band or metal clip. The piece itself tends to crack and even break the hair with which it is in engagement. In addition, the cross piece makes it difficult to roll the hair directly up to the scalp.

With the foregoing in mind, it is a primary object of this invention to provide an improved permanent wave rod in which the above difficulties are overcome.

More particularly, it is an object to provide an improved permanent wave rod which may be rolled directly up to the scalp and in which the use of a cross piece is avoided, but in which the core is nevertheless locked to the hair in a manner in which breakage or damage to the hair is minimized.

Another important object is to provide an improved permanent wave rod in which permanent waving fluid is more evenly distributed to hair wound about the rod.

Briefly, these and many other objects and advantages of this invention are attained by providing a basic permanent wave rod in the form of a hollow core having open ends. These open ends are arranged to receive suitable end pieces. The end pieces themselves each include a plurality of helically directed hook elements which pass adjacent to the opposite cylindrical end surfaces of the core member in such a manner that when the end pieces are slid into the core after hair has been wrapped about the core, the helical hook elements will twist into the hair and secure the hair in position. The majority portion of the exposed hair is thus not engaged by any transverse fastening means.

The core also includes improved egress means for permanent waving fluid in the form of elongated lateral slots rather than simple circular openings. These slots provide improved distribution of the permanent waving fluid to the air.

A better understanding of the invention will be had by now referring to a preferred embodiment thereof as illustrated in the accompanying drawings, in which:

FIGURE 1 is a perspective view of the permanent waving rod of this invention with the end pieces in place; and,

FIGURE 2 is an enlarged fragmentary exploded view of one end piece and an end portion of the core of FIGURE 1.

Referring first to FIGURE 1, the permanent wave rod includes an elongated core 10 provided with end pieces 11 and 12. As shown, one of the end pieces 11 includes

2

a central opening 13 communicating with the interior of the core 10 for receiving permanent waving fluid.

As shown in FIGURE 1, the core itself includes a plurality of elongated lateral slots 14 extending over a majority of the length of the core. Between these lateral slots, there are provided small projections 15 providing a roughened surface for enabling frictional holding of the hair during initial wrapping or coiling of the hair about the core.

In accordance with a primary feature of the invention, the end pieces 11 and 12 are each provided with a plurality of hook elements such as illustrated at 16 and 17 for the end piece 11. Since the hook elements on the end pieces themselves as well as the means for securing the end pieces within the ends of the core 10 are substantially identical, detailed description of one will suffice for both.

Thus, referring to FIGURE 2, the end piece 11 is shown in enlarged view as including, in addition to the helical hook elements 16 and 17, additional hook elements 18 and 19 totaling four in number uniformly circumferentially secured about the periphery of the end piece. As shown, these hook elements extend in a helical path adjacent to the cylindrical exterior end surface of the core 10 when inserted therein as shown in FIGURE 1.

In FIGURE 2, it will be noted that the end piece 11 also includes a stem portion 20 having diametrically radially extending projections 21 and 22. These projections may be biased inwardly by providing side slots 23 and 24 on opposite sides of the projection 21 and similar side slots 25 and 26 on opposite sides of the projection 22. With this arrangement, it will be evident that the projections 21 and 22 may be resiliently urged radially inwardly.

Each end opening on the core 10, such as the right-hand end portion as illustrated in FIGURE 2, includes diametrically opposite grooves 27 and 28 which initiate inside the entrance of the core opening to extend inwardly and circumferentially to define helical paths generally in the same direction as the helical paths followed by the hook elements 16 and 18. In addition, the exterior end surface of the core 10 includes small guide grooves as indicated at 29, 30, 31, and 32. These grooves are arranged to receive the extreme ends of the hook elements 16, 17, 18, and 19, respectively, when initially inserting the end cap in position.

Thus, in the particular relative orientation of the parts illustrated in FIGURE 2, the end cap 11 must be rotated in a counterclockwise direction looking from the right end so that the extreme end of the hook 16, for example, will be received in the entrance portion of the groove 29. In such position, the projection 21 will be received within the slot 27, and similarly, the projection 22 will be received within the slot 28. It will be evident that as the end piece 11 is pushed into the end opening of the core 10, the projections will be biased radially inwardly and then will snap into the grooves and additional sliding movement will cause the stem to rotate since the projections 21 and 22 must follow the helical paths defined by the grooves 27 and 28. The hook elements 16-19 in turn will be guided by the small grooves 29-32, respectively, so that they will spiral down adjacent to the exterior cylindrical surface of the core 10. The hook elements will therefore lock into the end portions of hair wrapped about the core when inserted in this manner. The direction of the helical elements is opposite to the direction of the winding of the hair about the core, so that any tendency for the hair to unwrap about the core will be opposed by the hook elements. The helical hooks on the end piece 10 form substantially a mirror image of the

hooks on the end piece 11 with respect to a transverse plane passing normally through the center of the core.

The operation of the permanent wave rod will be evident from the foregoing description. Initially, the end pieces 11 and 12 are retracted from the ends of the core 10 until the projections engage the ends of the grooves 27 and 28. The core and end pieces are rotated in a direction in which the lower surface moves away from the viewer; that is, viewed from the right end looking at the end piece 11, it would be rotated in a counterclockwise direction. Because there is no cross piece or other obstruction, the core may wind the hair directly up to the scalp. As soon as the hair has been completely wrapped about the core, the end pieces 11 and 12 are then slid inwardly as described in connection with FIGURE 2, pushing the same towards each other causing a rotation in a clockwise or opposite direction from the direction of the coiled hair so that the helical hook elements of each of the end pieces are secured within the marginal edges of the hair wrapped about the core. Any tendency for the core to unravel will thus cause the helical hooks to embed themselves more tightly in the hair, and thus the core is securely held in place.

Permanent waving fluid may then be introduced in a conventional manner through the opening 13 to the interior of the core 10 and out the various elongated slots to thoroughly impregnate the hair.

Preferably, a piece of tissue paper may be positioned about the extreme ends of the hair prior to wrapping the same up on the core 10. This tissue paper will serve to protect the extreme ends of the hair from becoming damaged and also prevent any damage as a consequence of direct contact between the hair and the small projections providing the roughened surface to enable initial winding to take place.

The end pieces are integral in construction so that there are only three major portions to the permanent wave rod. The driving of the helical hooks into the hair is entirely automatic in that rotation of the end pieces occurs when sliding the same into the ends of the core as a consequence of the diametrically opposite projections and helically shaped internal grooves in the end openings of the core. The various exterior guide grooves on the ends of the core serve to insure proper movement of the end pieces when inserting the helical hooks into the hair.

From the foregoing description, it will be evident that the present invention has provided a greatly improved permanent wave rod. While only one particular embodiment of the invention has been set forth and described, various changes that fall clearly within the scope and

spirit of this invention will occur to those skilled in the art. The permanent wave rod is therefore not to be thought of as limited to the exact embodiment set forth merely for illustrative purposes.

What is claimed is:

A permanent wave rod including: a hollow core having a plurality of elongated lateral slots distributed circumferentially in a uniform manner about its exterior for distributing permanent waving fluid received within the hollow interior of said core; small projections uniformly disposed about the exterior of said core between said elongated slots for providing a holding surface for hair wrapped about said core; end pieces adapted to be received in the opposite ends of said core, one of said end pieces including an opening for receiving said permanent waving fluid, each of said end pieces including a plurality of hook elements secured to its exterior surface in uniformly circumferentially spaced positions, said hook elements extending adjacent to the exterior cylindrical end surface portions of said core in helical directions, the direction of the helix for the respective hook elements on each end piece being opposite so that the hook elements define mirror images of each other with respect to a transverse plane passing normally through the center of said core, each end piece also including a hollow stem portion arranged to be received within the end opening of the core, said stem opening including diametrically opposite projections biased generally radially outwardly, the stem itself including lateral slots on either side of each projection; and the interior end opening at each end of said core including helically directed diametrically opposite grooves for receiving said projections on said stem whereby insertion of said end pieces by inserting said stem in said end openings with said projections registering in said helical grooves results in a partial rotation of said end pieces as they are urged axially towards each other so that said helical hook elements will lock into hair wrapped about said core to hold said hair on said core, the turning direction of said helical hook elements being opposite to the direction that said hair is wrapped about said core.

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