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(71) Applicant: **Strawllers, Inc.**
Hickory Hills, IL 60457 (US)

(72) Inventors:
• **Wells, Marc**
Burr Ridge, Illinois 60527 (US)
• **Ball, Richard Gilbert**
South Holland, Illinois 60473 (US)

(74) Representative: **Cohausz & Florack**
Patent- und Rechtsanwälte
Bleichstrasse 14
40211 Düsseldorf (DE)

(54) **Hair Styling Accessory**

(57) A hair styling device (100) for forming spiral curls is provided. The device includes a relatively rigid, elongated hollow cylinder having a plurality of apertures (110) through its outer wall. A segment of hair (120) is wrapped around the cylinder, inclined at an angle relative to a plane perpendicular to the longitudinal axis of the cylinder. The segment of hair can be secured to the cylinder using one or more clips (130). The segment of hair can also be secured to the cylinder using an elastic band (420) that can be attached to both ends of the cylinder. A method for forming spiral curls using the device is also provided.

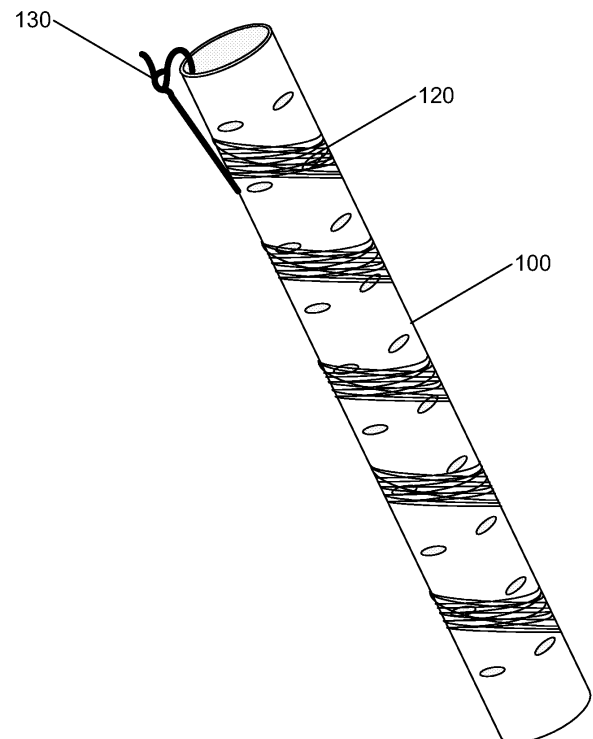


FIGURE 4

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Description

Field of the Invention

[0001] The present invention relates generally to hair styling accessories, and more particularly to a roller accessory that can be used for creating spiral curls.

Background of the Invention

[0002] Styles in which hair is curled have long been popular, particularly amongst women. One such hairstyle, a barrel curl style, has been created by wrapping hair around a short cylindrical roller. The hair is then set with the roller in place, often for an extended period of time, after which the hair takes on a tightly curled form.

[0003] Another female hairstyle that has recently attained a significant degree of popularity is the spiral curl hairstyle. In contrast to barrel curls, which are typically tighter, spiral curls result in looping, helix-like hair structures which can provide increased volume and interest to otherwise straight or wavy hair.

[0004] Conventional rollers do not provide a structure appropriate for creation of a spiral curl hairstyle. Therefore, spiral curls are oftentimes created using a curling iron. For example, the hair may be divided into segments, such as segments about one-half to three-quarters of an inch square. For each segment, the segment is positioned at the base of a curling iron. The iron is then rolled so that the hair is wound around the iron at an angle. The iron is held in place for a few seconds to set the curl. The iron is then slightly unwound in place to release the iron from the hair, before being slid out the end of the curl.

[0005] While spiral curls can be created using a curling iron, regular use of a curling iron can cause dryness to the hair shaft. Consistent curling iron use can also cause damage to hair, resulting in breakage and/or a lack of body and sheen. The unwinding process of removing the iron can cause inconsistencies in the curl form. Furthermore, for many individuals, curling iron spiral curls are short-lived, and must be frequently redone.

[0006] Instead of relying on a curling iron to create spiral curls, other stylists have created spiral curls using drinking straws or flat wooden sticks. The hair is wrapped around the straw or stick at an angle, in a spiral fashion. The hair is then set using a hair dryer and/or by leaving the hair wrapped around the straw or stick for an extended period of time.

[0007] While drinking straws and flat wooden sticks can be used to create spiral curls, use of these implements often results in a frizzy texture to the hair. To combat frizziness, an anti-frizz moisturizing product must often be used, increasing the time and expense of creating the hairstyle. Also, when removing such straws or sticks, the stylist may have to pull the hair into shape and spray the hair with a holding spray to fully achieve the desired level of curl. This step requires additional time and effort on behalf of the stylist, and frequently results in incon-

sistencies in the spiral shape.

[0008] The use of drinking straws can also present problems due to limits on their ability to withstand the heat generated by typical hair dryers, and the forces exerted upon the straws by the wrapping of the hair. Because typical straws are pliable, they can collapse, particularly under the heat of a hair dryer, causing the resulting curl to be flat instead of round.

[0009] The limited sizes and shapes of readily available straws and wooden sticks also present limitations on the variety of spiral curl styles that can be created. Finally, typical straws and sticks do not permit sufficient circulation of hot air from a hair dryer throughout the curl, which can result in longer set times, reduced curling effect and inconsistencies in the curl shape.

Summary of the Invention

[0010] In accordance with one aspect of the invention, a hair styling device for creating spiral curls is provided. The device includes a relatively rigid, elongated cylinder having a hollow center. The cylinder includes a plurality of apertures, each extending from the outer surface of the cylinder, through to the hollow center. In use, a segment of hair can be wrapped around the outer surface of the cylinder at an angle relative to a plane perpendicular to the longitudinal axis of the cylinder. While the size of the cylinder can vary, in some embodiments, the cylinder will be dimensioned to have a length and diameter in a ratio of at least 6 to 1, and possibly in excess of 9 to 1. The cylinder can be formed from hard plastic.

[0011] The apertures in the cylinder can promote circulation of air around and through the segment of hair, particularly when the cylinder and hair are exposed to hot air from a blow dryer. Preferably, the apertures are distributed relatively evenly across the outer surface of the cylinder. In some embodiments, the apertures are spaced apart from one another by approximately one-half inch.

[0012] In some embodiments of the invention, a mechanism is provided to help secure the wrapped segment of hair to the cylinder. A clip can be attached to one end of the cylinder for this purpose. The clip can include an elongated arm passing over the outer surface of the cylinder, which can be deployed to secure a segment of hair against the outer surface of the cylinder.

[0013] Alternatively, an elastic band can be used to maintain the position of a wrapped segment of hair against the outer surface of the cylinder. The elastic band may include a first endcap attached to one end, which is removably attachable to an end of the cylinder. The other end of the elastic band can be attached to the other end of the cylinder, such that the elastic band contacts the wrapped segment of hair at one or more locations along the length of the cylinder. Optionally, the other end of the elastic band can be fixedly attached to the other end of the cylinder, such as via a second, fixedly-attached endcap.

[0014] A method of forming spiral curls in hair is also provided. The method includes the step of separating a segment of hair from adjacent hair. The segment of hair is then wrapped around the circumference of a relatively rigid, elongated hollow cylinder having a plurality of apertures therein. The segment is wrapped in an orientation which is inclined at an angle relative to an equatorial plane of the cylinder. Once wrapped, the segment of hair is set. Finally, the cylinder is removed from the spiraled hair by moving the cylinder along its longitudinal axis.

[0015] Some embodiments of the method include the further step of securing the segment of hair to the cylinder. The segment can be secured to the cylinder by providing one or more clips with elongated arms, whereby the clip is secured to one end of the cylinder, and the segment of hair is passed beneath the elongated arm. In other embodiments, the method includes the step of providing an elastic band, where one end of the band is attached to the cylinder. The elastic band is then passed over the wrapped segment of hair, and the other end of the band is secured to the opposite end of the cylinder. By contacting the wrapped hair at one or more locations along the length of the cylinder, the elastic band can help maintain the position of the segment of hair relative to the cylinder.

[0016] The step of setting the wrapped segment of hair may include the application of a styling substance, such as a mousse or gel, to the segment of hair. The segment of hair can also be set by exposing the hair to heated air from a blow dryer.

[0017] These and other aspects of the invention will be evident to a person of ordinary skill in the art in light of the description provided herein.

Brief Description of the Drawings

[0018] FIGURE 1 is a perspective view of a hair curler device, in accordance with one embodiment of the present invention.

[0019] FIGURE 2 is an end view looking along the longitudinal axis of the hair curler.

[0020] FIGURE 3 is a perspective view of the hair curler, having a segment of hair applied in a spiral configuration.

[0021] FIGURE 4 is a perspective view of the hair curler with a clip for securing a segment of hair to the curler.

[0022] FIGURE 5 is a perspective view of an alternative means of securing a segment of hair to the curler.

[0023] FIGURE 6 is a perspective view of the hair curler, having a segment of hair secured using the means of FIGURE 5.

Detailed Description

[0024] While this invention is susceptible of embodiment in many different forms, there are shown in the drawings and will herein be described in detail, certain specific embodiments with the understanding that the

present disclosure should be considered as an exemplification of the principles of the invention and is not intended to limit the invention to the embodiments so illustrated.

[0025] FIGURE 1 is a perspective view of a hair styling accessory, in accordance with one embodiment of the present invention. Curler 100 is an extended, cylindrical device formed from hard plastic, such that the cylinder is relatively rigid. FIGURE 2 provides an end view of curler 100, along its longitudinal axis. In the embodiment illustrated, curler 100 is approximately 8 inches in length, and $\frac{3}{4}$ inches in diameter, with a cylinder wall thickness of approximately one-sixteenth of an inch.

[0026] A plurality of vent holes 110 (FIGURE 1) are distributed over the surface of curler 100. Preferably, the vent hole apertures are evenly spaced, approximately $\frac{1}{2}$ inch apart, in both the circumferential and longitudinal directions. In the embodiment of FIGURE 1, four vent holes are provided around the circumferential axes of the cylinder, spaced approximately every $\frac{1}{2}$ inch along the length of the cylinder. While it is understood that vent holes can be formed using a variety of different techniques, in the embodiment of FIGURE 1, the vent holes are formed by a drill bit having a diameter of about $\frac{3}{32}$ inch, applied at an angle relative to the outer surface of the cylinder, such that each drilling operation creates one vent hole at the point of drill bit entry, and a second vent hole as the drill bit exits the other side of the cylinder. Alternatively, vent holes could be formed by techniques such as injection molding of the cylinder, using a mold with vent holes preformed.

[0027] FIGURE 3 shows curler 100 employed in a spiral curl setting application. Hair segment 120 is separated from surrounding portions of a user's hair. Hair segment 120 is then wound around curler 100 at an angle, to form the hair into a helix-like structure, as illustrated in FIGURE 3. The angle at which hair segment 120 is wound around curler 100 can vary depending upon the desired style or effect, but can be on the order of 30 degrees relative to an equatorial plane of curler 100 (*i.e.*, a plane perpendicular to the longitudinal axis of the cylinder). Because curler 100 is rigid, it resists crushing or deformation while wrapping hair segment 120 around it, thereby ensuring a consistent shape to the hair while simultaneously facilitating the process of winding the hair.

[0028] Once wound, the hair segment 120 is maintained on curler 100 for a period of time to permit the setting of the curl in the hair. Once the desired amount of setting has been attained, curler 100 is removed by sliding curler 100 along its longitudinal axis, out of spiral curled hair segment 120. Because of the length of curler 100, it can be removed from hair segment 120 while avoiding the need for additional manipulation of hair segment 120 to place the hair into the desired spiral form. The easy removal and avoidance of post-removal manipulation of the hair also facilitates the efficient creation of spiral curls having a consistent appearance.

[0029] Preferably, the hair is also subjected to heating

from a hair dryer while wound on curler 100. When heated with a hair dryer, vent holes 110 provide improved uniform circulation of heated air around and through hair segment 120. As a result, a spiral curl set can be achieved more quickly.

[0030] While the embodiment of FIGURE 1 has a length of 8 inches and a diameter of $\frac{3}{4}$ inches, it is understood that differing sizes may be desirable depending upon the hair to be curled, and the desired style. Examples of other curler sizes that can be provided in accordance with the invention are curler lengths of 8 inches, 6 $\frac{3}{4}$ inches or 4 $\frac{1}{2}$ inches, with diameters of $\frac{1}{2}$ inch or $\frac{5}{8}$ inch. With a curler diameter of $\frac{1}{4}$ inch, lengths of 8 inches, 6 $\frac{3}{4}$ inches, 4 $\frac{1}{2}$ inches or even 2 inches can be effectively used. With a diameter of $\frac{3}{4}$ inch or $\frac{7}{8}$ inch, curler lengths of 8 inches or 5 $\frac{1}{2}$ inches can be beneficially employed. In general, the ratio of the length of the curler to its diameter will be at least 6, and in many embodiments, greater than 9.

[0031] The number of vent holes may vary depending upon the length and diameter of the curler, but in preferred embodiments, a sufficient number of vent holes will be provided to maintain a hole spacing of approximately $\frac{1}{2}$ inch in both circumferential and longitudinal directions.

[0032] In some embodiments of the invention, a means for securing a hair segment to the elongated spiral curler can be provided, to help maintain the hair on the curler in the desired position during setting. FIGURE 4 illustrates one such embodiment. Curler 100 is provided with spring-loaded clip 130. Clip 130 can be opened to permit wrapping of hair segment 120 around curler 100 in the desired spiral configuration. Clip 130 is subsequently closed, to pin hair segment 120 against the outer surface of curler 100, thereby retaining hair segment 120. Optionally, a second clip can be provided on the opposite end of curler 100 to further maintain the wrapped position of hair segment 120 relative to curler 100.

[0033] FIGURE 5 depicts an alternative device for maintaining spiral positioning of a hair segment relative to an elongated curler. The hair retention device of FIGURE 5 includes curler end caps 400 and 410. End caps 400 and 410 are configured to fit over an end of curler 100. In the embodiment illustrated in FIGURE 5, end caps 400 and 410 are comprised of a circular structure having a U-shaped cross section. The open end of the U-shaped cross section is oriented to fit over an end of curler 100. End caps 400 and 410 are connected via elastic band 420, which is secured to the two end caps at opposite ends of the band.

[0034] FIGURE 6 illustrates the hair retaining device of FIGURE 5 in a deployed orientation. Once a hair segment is spiral curled around the exterior surface of curler 100, end caps 400 and 410 are secured to opposite ends of curler 100. Elastic band 420 is stretched longitudinally along an outer side of curler 100, such that it contacts hair segment 120 along one side of the curler, thereby serving to maintain the position of hair segment 120. At

least one endcap is preferably removable, so that elastic band 420 can be retracted away to facilitate wrapping of hair segment 120 around curler 100 without interference. Optionally, in some embodiments, one endcap can be fixedly attached to an end of curler 100, so that the elastic band and the other endcap are retained on curler 100. In other embodiments, the fixed end of elastic band 420 can be attached directly to the curler. Either way, by fixedly attaching one endcap to curler 100, opportunities for loss of the endcap/band retaining device, and the potential for unintentional disconnection of the endcaps from the curler, can be reduced.

[0035] Optionally, a styling substance can be applied to the segment of hair in connection with the setting of the hair, to achieve a desired additional level of stiffness of the spiral curl. Substances such as mousse, hair gel or other styling solutions can be used.

[0036] By providing the elongated, rigid, ventilated curler illustrated in the embodiments of FIGURES 1-6, a stylist can provide a spiral curl hair style more quickly and easily, while achieving improved setting time, improved spiral consistency, and extended style lifetime - while simultaneously avoiding hair dryness or other damage that can be caused by frequent use of curling irons.

[0037] The foregoing description and drawings merely explain and illustrate the invention and the invention is not limited thereto, inasmuch as those skilled in the art, having the present disclosure before them will be able to make modifications and variations therein without departing from the scope of the invention.

Claims

1. A hair styling device for creating spiral curls comprising:
 - a relatively rigid, elongated cylinder having a hollow center;
 - a plurality of apertures in the cylinder, each extending from the outer surface of the cylinder through to the hollow center;
 - whereby a segment of hair can be wrapped around the outer surface of the cylinder at an angle relative to an equatorial plane of the cylinder to form a spiral curl.
2. The device of claim 1, in which the cylinder has a length and a diameter, and the ratio of the length to the diameter of the cylinder is at least 6.
3. The device of claim 1, in which the cylinder has a length and a diameter, and the ratio of the length to the diameter of the cylinder is at least 9.
4. The device of claim 1, in which the cylinder is comprised of hard plastic.

5. The device of claim 1, in which the plurality of apertures are distributed relatively evenly across the outer surface of the cylinder.
6. The device of claim 1, in which the plurality of apertures are spaced apart from one another on the outer surface of the cylinder by a distance of approximately one-half of an inch. 5
7. The device of claim 1, further comprising a clip attached to one end of the cylinder, which clip comprises an elongated arm which extends along the outer surface of the cylinder in a longitudinal direction, whereby the clip can be deployed to retain the position of a segment of hair wrapped around the outer surface of the cylinder. 10 15
8. The device of claim 1, further comprising:
- a first endcap, which is removably attachable to an end of the cylinder; and 20
- an elastic band having a first end and a second end, where the first end of the elastic band is connected to the first endcap, and the second end of the elastic band is connected to an end of the cylinder. 25
9. The device of claim 8, in which the elastic band is fixedly attached to an end of the cylinder. 30
10. The device of claim 8, further comprising a second endcap which is attached to the second end of the elastic band; whereby the second end of the elastic band is attached to an end of the cylinder via the second endcap. 35
11. The device of claim 1, further comprising means for securing a segment of hair against the outer surface of the cylinder. 40
12. A method for curling hair, the method comprising the steps of:
- separating a segment of hair from adjacent hair; 45
- wrapping the segment of hair around the circumference of a relatively rigid, elongated hollow cylinder having a plurality of apertures therein, inclined at an angle relative to an equatorial plane through the cylinder; 50
- setting the segment of hair; 50
- moving the cylinder along its longitudinal axis to remove the cylinder from within the spiraled segment of hair.
13. The method of claim 12, further comprising the step of securing the segment of hair to the cylinder. 55
14. The method of claim 13, in which the step of securing the segment of hair to the cylinder is comprised of the substeps of:
- providing a clip having an elongated arm, the clip being attached to one end of the cylinder; 60
- passing the segment of hair under the elongated arm of the clip.
15. The method of claim 13, in which the step of securing the segment of hair to the cylinder is comprised of the substeps of:
- providing an elastic band having a first and second end, the first end of which is attached to a first end of the cylinder; 65
- passing the elastic band over the wrapped segment of hair; 70
- securing the second end of the elastic band to a second end of the cylinder; 75
- whereby the elastic band promotes the maintenance of the position of the segment of hair relative to the cylinder.
16. The method of claim 12, in which the step of setting the hair is comprised of the substep of applying a styling substance to the segment of hair.
17. The method of claim 12, in which the step of setting the hair is comprised of the substep of exposing the segment of hair to heated air from a blow dryer.

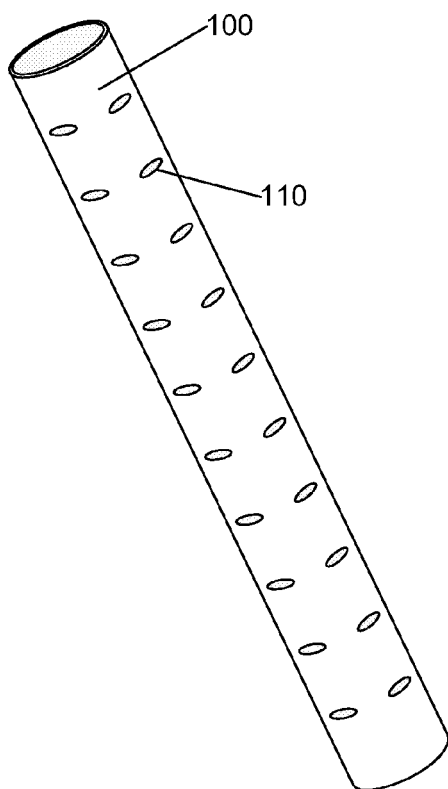


FIGURE 1

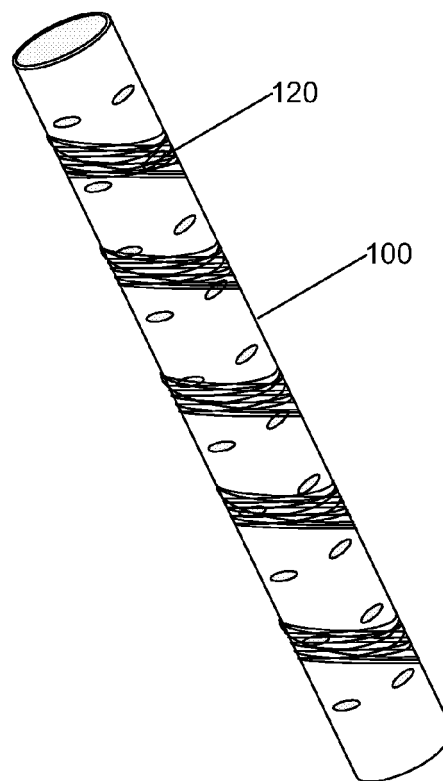


FIGURE 3

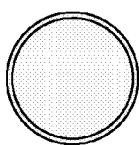


FIGURE 2

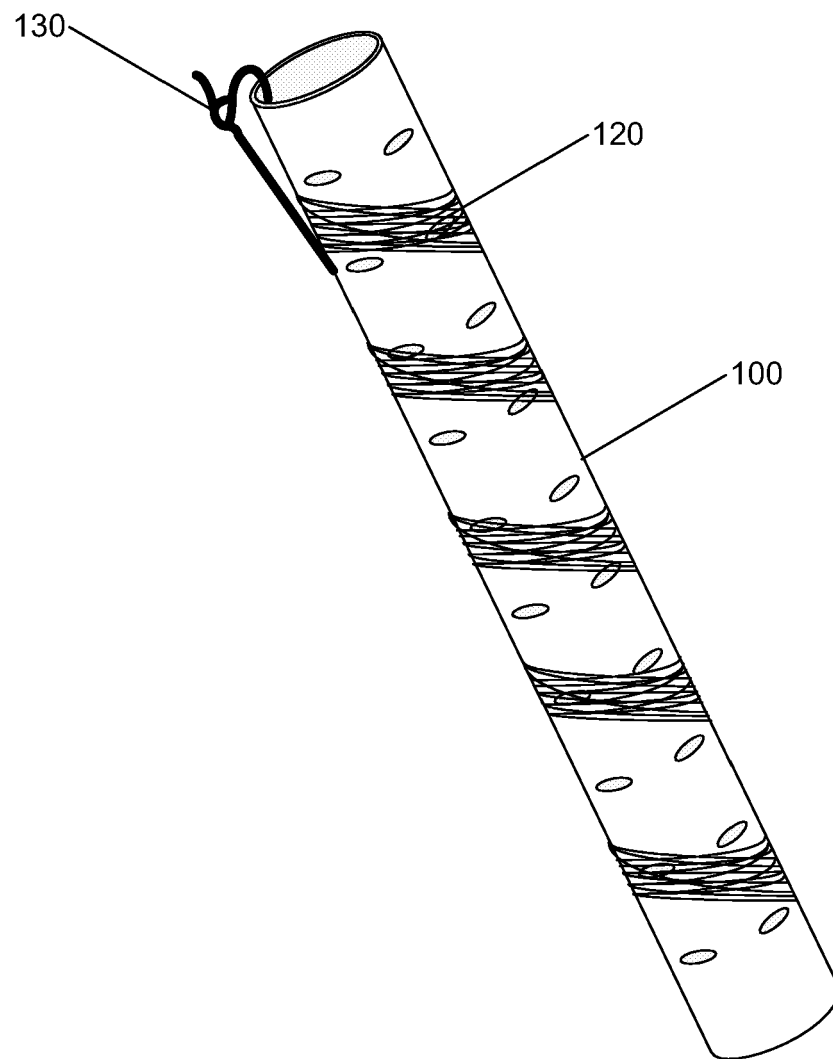


FIGURE 4

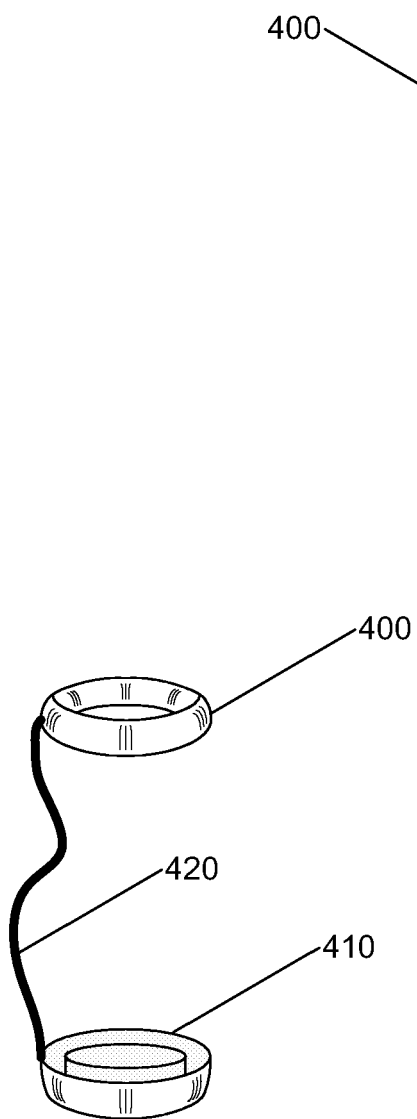


FIGURE 5

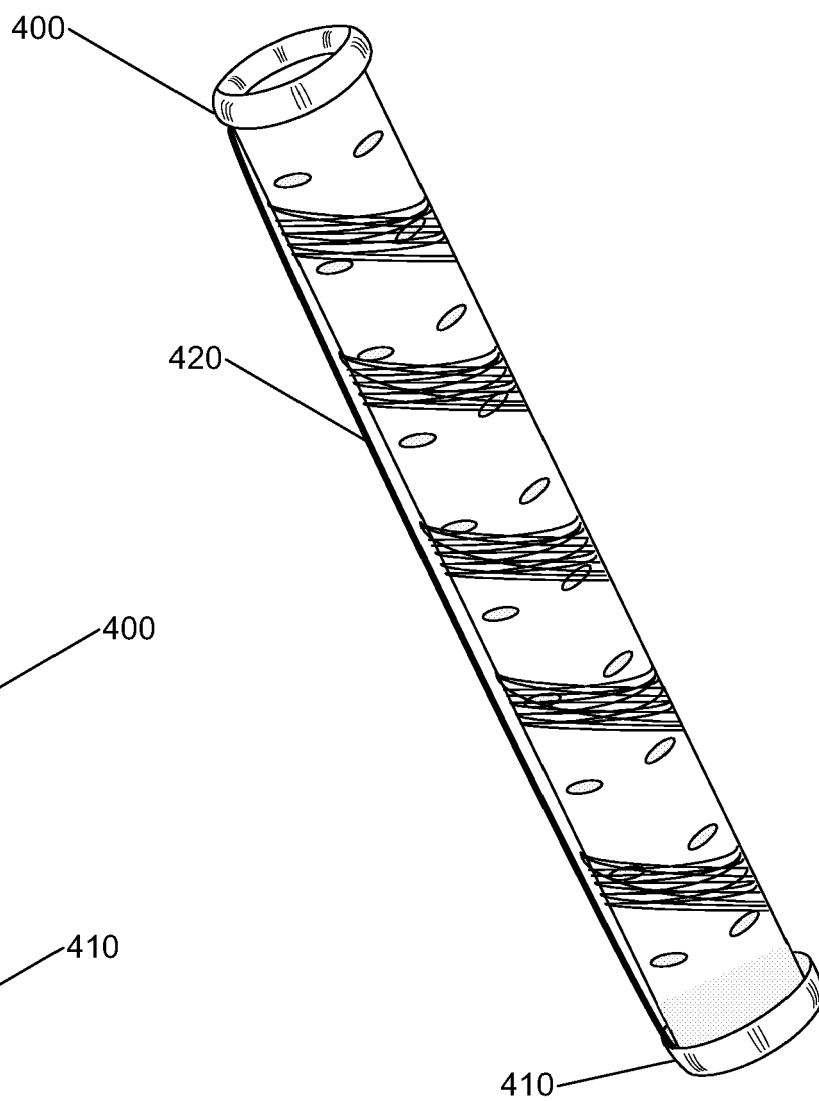


FIGURE 6



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 10 8737

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Place of search Munich		Date of completion of the search 21 July 2008	Examiner Escudero, Raquel
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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